

# MANUFACTURERS' RECORD

A WEEKLY SOUTHERN INDUSTRIAL, RAILROAD AND FINANCIAL NEWSPAPER

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## Manufacturers' Record.

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As announced in our last issue, the Manufacturers' Record has commenced the publication of a series of letters covering the industrial and financial development of New England as an inspiration to the South. The second of the series appears today.

In this week's issue the Manufacturers' Record begins a series of articles by Mr. John Marshall Grasty, Johns Hopkins University, on the geological exhibit at St. Louis. These letters will cover in detail the work of the geological surveys of each of the Southern States, and while written from the point of view of the accuracy of the scientific student, will be intended largely for the benefit of the layman, in order that the layman as well as the scientist may see exactly what has so far been done by the geological surveys of the Southern States.

### ITALIANS FOR THE SOUTH.

Dr. John A. Wyeth of New York, though far removed from his native State, Alabama, is intensely interested in the future of the South, and at present is showing that interest by urging measures for building up that section. In a recent letter to the New York Sun he points out that probably not one-half of the land in the South is cleared and cultivated, and that many ages must elapse before the resources of the South in that particular may be exhausted. He believes that the most urgent need of the South is immigration, and that the intelligent, sober, industrious and frugal natives of middle and northern Italy will furnish ideal laborers and citizens, and will quickly adapt themselves to Southern agricultural conditions. That Italians can do this has already been demonstrated at several points in the South, and there seems every reason to believe that efforts looking to that end, if properly sustained, would in a few years induce a marked change in Southern agriculture. The Italian consul at New Orleans has for more than a year been trying to impress upon Italians the advantages which the South offers for them, and has, after study of the situation, sketched the

natural process whereby they may change from cotton-pickers in the employ of others to growers of cotton, corn and vegetables on their own lands. Instances of the beneficial effects of their frugality abound, and they may be duplicated a thousand-fold to the mutual advantage of the settlers and the South.

Advertisements of Southern localities offering special advantages for the location of manufacturing enterprises will be found on pages 55 and 56.

### INCUBATORS OF INDUSTRY.

Public-spirited citizens of Hartford, Conn., have started an enterprise which in its development will be watched carefully and which may become an example for Southern communities ambitious to realize their full industrial possibilities. About \$115,000 have been subscribed for the purpose of erecting what has been termed an industrial incubator or nursery. In the building, which will be equipped with a power plant and will have a floor area of more than 50,000 square feet, it is proposed to let rooms and power at a nominal figure to infant industries as an inducement to new industries to come to the city or be started there, the idea apparently being that the infants will soon develop into full-grown manufacturing undertakings beyond the capacity of the nursery. This project has led the Fall River Herald, with characteristic New England foresight, to urge that something of the sort be started in its city. It notes that Fall River has become the greatest textile center in America, because for years the whole bent of public enterprise has been toward cotton mills and allied interests, but it finds in the present depression in the textile trade there an argument against carrying all of one's manufacturing eggs in the same basket. It is hoped that nothing like the situation at Fall River may ever come to a Southern community; but there are in the South a number of cities whose prosperity is more or less dependent upon a single kind of industry, textile, iron or woodworking, and it might be well for such communities to study the Hartford device with a view to avoiding any Fall River contingency.

### NOT A WISE SUGGESTION.

At the recent meeting at Baton Rouge of the Association of Commissioners of Agriculture of Southern States the suggestion was made that growers of cotton in States that had not become infected by the boll-weevil pay a tax on each bale produced for the compensation of those who may be compelled to quit cotton-growing for the purpose of annihilating the weevil, and an argument advanced in favor of this suggestion was that such a policy would decrease the acreage and curtail the annual yield to probably 8,000,000 bales, thereby increasing the demand and establish-

ing a higher price. The philanthropy of this suggestion may be above criticism; its economy is not. No artificial devices are necessary to insure an increased demand for cotton. The growing population of users of cotton in the world may be expected to attend to that naturally. Nor should there be any strenuous effort to decrease the acreage in cotton, provided the available acreage may be properly handled. A reduction of the American crop of cotton by accident or by design to anything like 8,000,000 bales a year would mean far-reaching disaster and suffering. The world now needs at least 11,000,000 to 12,000,000 bales of American cotton annually, and the need is bound to become greater and greater with every year. The South is pre-eminently the place for that need to be met, and it can be met through a policy of promoting greater production per acre rather than an expansion of acreage, though that should come in time, and of cultivation of co-operation among growers and manufacturers for an increase of workers in Southern cotton fields.

### THE COTTON SUPPLY AND IMMIGRATION.

Under present conditions the South seems to have reached the utmost average limit of cotton production, and whether the yield be 11,000,000 bales or more, it would scarcely seem reasonable to look for a larger average crop until the labor supply has been greatly increased. As a whole, the weather this year has been fairly favorable and the acreage up to the full limit of the labor supply. The world must, therefore, face the fact that we are square up against the danger of a cotton supply totally inadequate to meet the world's increasing needs. The whole world is entering upon a period of expanding trade and of advancing civilization in Asia, Africa and the Isles of the sea, which will inevitably vastly increase the normal growth in the demand for cotton. Without a substantial increase from year to year in the supply of the raw material, the cotton world would in the near future have to face a cotton famine, and this would be a disaster of far-reaching effect. The time has come for the South as the chief source of cotton supply, as well as for the cotton interests of the world, to give serious heed to the situation. We must take a broad view, and not look at the matter merely from a narrow, selfish end, taking account of the present only. The suggestion made last week by the commissioners of agriculture of the South, that an effort be made to reduce the crop to 8,000,000 bales, would be, if carried out, as fatal to true Southern prosperity as would be the effort of a few men to prevent immigration, for fear that this would mean an increase in the cotton crop. These views, however, are not more narrow, advanced as they are by good men who look only at one side, than are the views of some cotton manufacturers North and South who want to see cotton-growing developed in other coun-

tries in order that this may lessen the demand for Southern cotton and thus enable them to buy at a lower price. These manufacturers naturally do not want to see other mills built North or South, and do not want others from elsewhere, Europe especially, to come South and study the situation, for they would much prefer to force Europe to grow cotton in Africa. "We do not want to encourage competition for Southern cotton, because we want to keep it here for Southern mills," said one Southern mill man lately. All of these views are narrow and mistaken, but it is not surprising that they are advocated by some good men, for all men are too apt to see only one side of the shield, and that the one which seems to concern their own immediate case.

The world's demand for cotton is growing at a rapid pace, and it must grow still more rapidly. Instead of about 15,000,000 bales of cotton now annually consumed, it will not be many years before 20,000,000 or 25,000,000 bales will be needed. Shall the South supply this, and thus enormously add to its wealth, or shall inaction on our part force the growing of more cotton in Africa, in Asia and in the West India islands? Shall we avail ourselves of the first great opportunity which has offered for a 100 years to turn the tide of population Southward, and thus forever settle the race question, while doubling and quadrupling our wealth and power, or shall we, because of the mistaken notions of people who will not look at these questions from the broad standpoint of good to all and thus of greater good to every individual, lose this magnificent opportunity and kill the goose that is laying our golden eggs? That the race question is in some respects a serious one we must all admit; that the race question would be forever eliminated as a dangerous factor in social and in political life by a great inflow of white population is universally admitted. This is the supreme need of the South. Beside it every man who looks ahead and sees our dangers must realize that all other questions are of but little moment. It is a question which cannot be settled by presidential elections; it is a question that takes hold of the very life of the South. It is time for such railroads as the Southern, the Illinois Central, the Southern Pacific, the Atlantic Coast Line, the Louisville & Nashville, the Seaboard and others to really wake up to its importance. They are doing a little immigration work, but pitifully little as compared with what they should be doing. For every dollar they are spending in this work they should spend ten. Until recent years the conditions have all been against success in immigration work, and large results could hardly have been expected. People never flock to a land of poverty, and under low-priced cotton Southern agricultural interests were, indeed, in poverty; but people will pour into a land of prosperity, and high-priced cotton has made the whole South more prosperous than for many years, provided its attractions

and advantages are pressed upon them. Let the railroads, the State and municipal governments of the South inaugurate such an immigration campaign as the Western roads and States carried on when the mighty tide of population swept over and enriched that section, or such a campaign as Canada is now pushing forward. Then may we look for the utilization of our great opportunity. Quickened to a full realization of our opportunity and our responsibility as to the present and future of the South, we would put forth every effort to enlist the co-operation of the capital and the manufacturers of Europe and the North and the West. We would welcome every dollar of outside capital that could possibly be induced to invest in the South, for it would help to bring new population, and we would welcome every newcomer, for capital would likewise follow and wealth be created and race dangers swept away. Then would we vastly increase our wealth and power, vastly increase every line of agricultural and manufacturing interest, and create new avenues for profitable employment for thousands who now annually go elsewhere. Since 1860 we have sent out from the South 2,500,000 of whites to help people other sections. This drain of brain and brawn has been greater, measured from the financial side alone, than if the South had dumped into the sea \$2,500,000,000; and this drain must continue until we turn the tide of population Southward. With our enormous area and our vast resources, the South cannot begin to show a full measure of prosperity until its population is greatly increased. Let us then welcome the coming to the South, whether as investigator or investor, of business men of Europe, of the North and of the West. Let us show to them, as well as to the farmers of Europe and the West and the North, that here are unequalled opportunities for the expansion of agriculture, the investment of money and the development of industrial interests. The time has come for every man in the South and every man interested in the South to take a broad view of the present opportunity and his responsibility to the future.

#### SOUTHERN OPERATIVES NO LONGER FOOLED.

Two features of the annual convention of the United Textile Workers of America at Lowell, Mass., are of special interest to the South. The first was the statement by President Golden:

The South is often pointed out to us in regard to its long hours and low standard of wages. I have been fortunate in having had the opportunity to study conditions there to some extent, and while many of our people believe that the Southern operative cannot be brought in line, I firmly believe that in course of time, with that spirit of independence and courage that he has displayed on many former occasions, he will see a way of organizing. Our Northern manufacturers, whenever they desire to reduce our wages or increase the hours of labor, raise the time-worn cry of Southern competition.

That last sentence coming from such a source ought to open the eyes of honest persons who persist in believing that the organization of labor troubles for Southern cotton mills, whether in the guise of "philanthropy" in "child-labor" agitation or in seeking to disrupt the friendly relations of employees and employers, is of local or Southern origin. It should end their career as involuntary tools of the outside agitator or the home sociologist seeking notoriety or a vent for emotions.

Among these tools in the past have been not a few of the operatives in Southern mills. Following the statement by some Northern manufacturers

as an excuse for reducing wages or increasing hours of labor that they were victims of "Southern competition," there has invariably been an effort to agitate in the South, and the operatives there have been subjected to various beguilements. For instance, it was officially announced that the convention of the body now known as the United Textile Workers was taken up as far South as Washington in 1900 "for the purpose of giving the textile workers of Southern States a chance to be represented, and at the same time to help the cause of organization in that part of the country." This was followed by a strike engineered from Fall River of operatives at Augusta, Ga., and in the nearby Horse Creek valley in South Carolina. This strike continued 15 weeks and involved 7000 operatives. For their support the New England unions contributed about \$7000, or less than seven cents a week for each of the Southern operatives involved in the strike. That was an eye-opener to the Southerners, and is probably the explanation of the fact that Southern "unions could not see their way clear to sending delegations" to the Lowell convention of this year, which lack of representation was credited at Lowell to "the past year having been such a disadvantageous period for the Southern industry." As a matter of fact, Southern operatives knew something of the game of holding the bag on a lonely night road for the purpose of catching skylarks, and they have some little knowledge, too, of the parable of the monkey, the cat and the chestnuts in the fire. That they did not see fit to be represented at this year's convention of the United Textile Workers of America is one of the most advantageous incidents of the present history of Southern industry.

#### PROPER HANDLING OF COTTON.

Just before sailing for England, after a brief visit to New York, Mr. Marshall Stevens, one of the founders of the Manchester ship canal and an authority on cotton transportation, uttered through the New York Journal of Commerce some sound advice about the proper handling of cotton. He said that the effort of the textile interests in the United Kingdom to extend the area of the supply of the raw material was not aimed against the cotton of the United States, but was the outcome of the necessity to obtain a full supply of the staple without excessive variations of price. Referring to the British Cotton-Growing Association as one of the strongest movements of today, he said that the United States will continue to supply the major portion of the world's requirements for years, but that there would be a large and always-increasing development elsewhere. He added:

If, however, nothing more happens than to bring your growers face to face with the fact that they must send their commodity to market in a reasonable condition, in general conform to modern requirements, the work of the British Cotton-Growing Association will have been justified. At Manchester you can see discharging side by side cargoes of American and Egyptian cotton, and I can assure you that seeing that and not knowing the reverse to be the case you would consider your cotton had been sent to market by aborigines who could hardly distinguish between the value of cotton and dirt. I know you value the soil of your country, and wonder on that account you let so much of it come away.

It is fashionable to rave against the cotton speculators, whose operations have been so harmful to the whole cotton trade. The fault, however, has been with the growers and spinners in allowing conditions to exist which enable a few men to upset the whole trade to the extent of bringing tens of thousands of cotton operatives down to the verge of starvation, to be followed by an excess of

supply of raw material, for which the grower must, in turn, suffer.

All this would be avoided by the simple expedient of sending your cotton to market under up-to-date conditions, which would enable the spinners to purchase actual cotton for their future requirements instead of purchasing futures from speculators who have no intention of supplying cotton, but only of receiving and paying differences.

To do this it is necessary to grade and properly pack and warehouse cotton at the point of production, so that its condition and identity being fully secured it at once becomes an asset with a value which can be closely appraised, and, if facilities are provided, can be sent forward as its owners require.

When this question was taken up—as it seemed to us—seriously a couple of years since, our spinners and bankers received an American deputation and indicated in the strongest terms possible that they would give practical assistance to such a movement.

More than that, however, has been accomplished, as, feeling that it is only a question of a short time before your growers will want to link up with our consumers to form a strong chain for carrying cotton from field to mill, we have got our end of the business ready for co-operation.

I am glad to know that a movement is again on foot to bring about the necessary conditions on this side, and to feel that it is in the hands of most substantial people.

I cannot commit them by giving you their views, but that, knowing I was here, and wishing to take advantage of my knowledge of the transportation and warehousing requirements on our side, a conference has been held of important Southern and financial interests which is likely to forward considerably the desired results.

It is by no means improbable that Mr. Stevens' judgment on the always-increasing production of cotton elsewhere than in the United States may be the correct one. Should that be so his plea for improvement in the baling and other handling of American cotton would be reinforced by its coming into competition with cotton grown elsewhere. But, in spite of the hopes based upon the program of the British Cotton-Growing Association to advance the growing of cotton in British dominions, it looks as though it might after all be more economic and more conducive to the adequate co-operation of world-spinners and growers if the effort for an expansion of the cotton acreage should be exerted in the region unexcelled for that purpose—the South. Let the spinners come and see.

#### THE DAY OF THE AUTO-VEHICLE

The day of the auto-vehicle is rapidly approaching. The Horseless Age, a publication devoted to auto interests, estimates that already 39,000 autos of various kinds are in use in this country. Five years ago there were probably not 3900. That, of course, presages a revolution in transportation in city streets and country highways. It is a revolution that cannot be stopped, but it may be hastened on sane and safe lines if its promoters give heed to certain warnings cropping out more and more frequently in the press against practices which, if persisted in, must surely embarrass the manufacturers and users of autos and postpone unnecessarily a really beneficial advance. Already individual users of autos, by their contempt for local ordinances and for the rights of users of other vehicles and of pedestrians, have aroused the antagonisms of certain classes in the community which only need the deft suggestive leadership of yellow journalism to become unreasoning opponents of all autos and of all methods of transportation dependent upon the auto. Alluding to the death of nine persons in an auto-car driven by a drunken man, the Philadelphia Press says:

The drunken chauffeur adds a new terror to life. The automobile in the hands of a sober chauffeur is bad enough. It has increased the peril of the streets, made the pleasure of driving horses a pain, disturbed

the serenity of the country-side and added greatly to the annual total of deaths by accident. \* \* \* Anyone who attempts to manage an automobile while under the influence of drink should be treated as a criminal and punished summarily. Selling liquor to one who is operating, or about to operate, an automobile should be severely regulated. These road engines are terrible enough in the most skillful hands. To allow men crazed or stupefied by liquor to convert them into cars of juggernaut is intolerable.

On the same point the New York Globe says:

The automobile is simply a locomotive turned loose on the public highway, and its regulation is a matter of the highest importance to the safety of human life. Chauffeurs should be under the same rigid restrictions in regard to the use of liquor that locomotive engineers are.

So, too, the Brooklyn Daily Eagle says:

Reckless drivers of automobiles have had to endure the blame for running over people that has come to be attached to all automobiles. Sensible folks know that for one careless driver there are a thousand who are sensitive as to the rights of others on the highways. And the police are pretty vigilant in arresting those who exceed the legal speed limit. But a new terror has been added to the use of the machine. It is not so much a menace to those who get in front of them as to those who ride in them. \* \* \* That the machine should be taken out at night by half-constructed and altogether frisky persons is a menace both to those on and in front of the machine.

As emphasizing this argument, and referring to a charter provision of New York limiting the possibilities of a commercial use of autos, the Eagle says:

Clearly there is a possibility of competition with the existing service by these vehicles not unlike that with which electric cars are now threatening steam roads. The way should be made clear for every such improvement of this public service.

Equally rational is the view of the New York Evening Mail, which says that recent events seem to point to some such organization of the roads and streets as will give the motor-cars a fair chance and also protect the public, and it adds:

It is possible to reach such an adjustment. The automobilists themselves must be in favor of it. They have no desire to live in a state of war with the general public. And they, as well as pedestrians and drivers of horse vehicles, have rights on the highways.

Farmers at Long Island and other parts of the country are resenting the recklessness and indifference of automobilists, and the Hartford (Conn.) Courant says:

It is an old story, but one confirmed by many sufferers, that the speeders who use Connecticut, for instance, simply to get across it laugh at arrest, and if they are fined, consider that the episode adds so much to the fun of the transit of the State. Money is no object; it is excitement and the pleasure of the chase that is sought. These fellows threaten the whole automobile interest. Restrictive regulations will be plentier unless a check is put on the reckless. The automobile is one of the most enjoyable of modern inventions. It would be a general misfortune if the feeling against it becomes so strong that its use is actually impaired. But that is what will come unless decency is insisted upon among all who drive the machines.

Such utterances by friendly critics demonstrate that at present the real enemies of autoism are reckless automobilists. They should be suppressed promptly if the enmity is not to extend generally in the community.

The automobile is best known at present as a pleasure vehicle, and the prejudice against it is due to the reckless use of it by a class, fortunately limited in number, prone to vulgarity in anything they undertake. The mass of automobilists backed up by conservative public sentiment may be expected to suppress objectionable practices. In the meantime, the use of vehicles propelled by gas or steam is becoming more and



more general on commercial lines, with speed as a secondary matter. The World's Work points to a recent trip of a motor-car from San Francisco to New York as an indication of what may be expected shortly in travel, and it expresses the opinion that the mechanism of the car may be so simplified that light machines will be more common than horses and buggies where there are good roads. It also notes the increasing employment of automobile omnibuses and trucks in large cities, and auto street-sprinkling machines in use in Paris, a somewhat similar machine used by a lumber company in Michigan, either as a snow plow or as a traction engine, and the invention in England of an automobile coast-defence carriage, a sort of monitor on wheels. These facts demonstrate the almost limitless possibilities of the automobile, such possibilities that they must be realized. In that there is a practical lesson for the South. At the time when electric traction displaced the horse and mule in street-car traffic the South was not in a position to gain the advantage of getting promptly into the field as a manufacturer of electric cars and other electric equipment. There should be no excuse for it not to benefit from the new development in transportation. The future of that is clearly marked, and the South should seize the opportunity and build plants for the manufacture of automobiles of all kinds to meet the demand that is certain to come in the immediate future.

H. S. Dodenhoff, secretary of the West Point (Miss.) Board of Trade, referring to the advertisement of West Point in the Manufacturers' Record covering the industrial and commercial advantages of West Point, says in a recent letter:

We are getting most satisfactory results from our advertisement in the Manufacturers' Record, for which we are indebted to you.

#### Pig-Iron Storage Warrants.

The American Pig-Iron Storage Warrant Co. has succeeded in arranging with the board of managers of the New York Produce Exchange rules covering the sale of pig-iron on the exchange. These rules are a new feature, or, rather, an advance step in the mode of marketing pig-iron. Under the Scotch system the purchaser of warrants is obliged to receive what the seller chooses to give him, and, naturally, he gives him the poorest thing he has. Under the new certificate system of the American Pig-Iron Storage Warrant Co. the holder of a certificate for 100 tons of pig-iron may choose out of all the iron represented by warrants on deposit with the trust company 100 tons of such iron as will best suit his purpose. In other words, the trust company becomes the clearing-house where everyone holding a warrant can deposit it, according to the rules of the exchange, and take out a certificate which will become a desirable thing for the purchaser, because he can select any iron he prefers which may be represented by a warrant on deposit. This plan, before it was taken up by the Produce Exchange, had been submitted to a large number of pig-iron producers and consumers both in America and Great Britain. It is the result of several months of hard work, and has been commended by a great number of producers and consumers, bankers and others.

#### Foreign Spinners Buying.

The latest report of Col. Henry G. Hester, secretary of the New Orleans Cotton Exchange, that for October 21, indicates that foreign spinners have evidently taken to heart last year's lessons in the

cotton market. In the first 51 days of the season of 1903-1904 about 43 per cent. of the available supply of the staple had gone abroad, while American spinners had taken about 24 per cent. The total supply of cotton during the same period of the present season was 3,142,117 bales, an increase of 1,002,425 bales, or 46 per cent. Of this supply 1,464,963 bales, or more than 46 per cent., have gone abroad, while 601,648 bales, or about 19 per cent., have been taken by American mills. The exports increased 56 per cent., the actual increase being 528,636 bales, while the takings by American mills increased 83,948 bales, or but 16 per cent. Great Britain took 799,303 bales, an increase of 416,222 bales, or 108 per cent. over its takings during the same period last year. The activity of Great Britain as a buyer suggests that the spinners there are not waiting this year for a lower price, but are determined to get cotton.

#### The Southern Farm Magazine.

In the November number of the Southern Farm Magazine Col. J. B. Killebrew, writing from a ripe experience and a broad personal study, devotes the major portion of his monthly talk with farmers to a plain and practical discussion of the relations of railroads and farmers in emphasis of the benefit to be derived by the South from the exercise of corporate energies there. A farmer himself, a man of long and successful service for railroads, and well fitted to view the subject from both points of view, he has set forth a mass of facts which should commend his argument everywhere. Prof. Andrew M. Soule, in his clearing-house of agricultural information, discusses under special headings and in answer to correspondence cowpeas, woods pastures, dairying, sorghum, bluegrass, winter wheat and alfalfa. Some interesting sidelights are thrown upon the recent convention of the Southern Cotton-Growers' Association, of special interest in that connection being the talk of Col. S. F. B. Morse on the superstitions of cotton speculators. The department of immigration is full of facts showing the ever-increasing movement of settlers to many parts of the South and the interest taken in that movement. In the department known as "Wagging of the World" are discussed the fads and foibles of modern education, and such incidents as the visit of the Archbishop of Canterbury to this country, the flutter over the arrest in Massachusetts of an attaché of the British Embassy and the remarkable suggestion by General Corbin about marriages in the army. In the family department and editorially are treated such topics as the duty of parents, servants, preserving, organizations of farmers, etc.

The Southern Farm Magazine is published monthly by the Manufacturers' Record Publishing Co., Baltimore, Md.

#### Coal Trade Improvement.

The improvement in the coal trade is indicated in a letter from the Bluefield Coal & Coke Co. of Bluefield, W. Va., which in a letter to the Manufacturers' Record says:

"We are so far oversold on our coal at this time that advertising would be unprofitable, since we could not fill orders which we might receive therefrom."

#### Want Electrical Hammers.

Messrs. Rauscher & Anders, Weinstrasse 45, Vienna, Austria, write the Manufacturers' Record they are desirous of obtaining particulars and prices on electrical hammers for working castings. They are also interested in other machinery driven by electricity and in innovations that are useful in factories using steam-power.

## Reasons for New England's Industrial Growth—II.

[Special Correspondence Manufacturers' Record.]

Boston, Mass., October 24.

To properly appreciate the magnitude of New England's industries, it is worth while to consider that the estimated \$2,000,000,000 value of New England's manufactured products for the current year is about the same as the value of all the corn, all the wheat and all the cotton raised this year in the United States. While there may be duplications in the figures to some extent, yet it is a fair conclusion that something like \$2,000,000,000 really represents the amount of newly-made, available wealth which is added to the assets of New England every year.

What this means to the people and the communities of these States some inkling may be obtained if one make no deeper investigation than merely to glance out the car window as he rides through this section on a train. He will get glimpses of magnificent public buildings like the wonderfully fine new Statehouse at Providence; he will see remarkable railroad improvements like the reduplication of trackage and the extensive station construction of the New York, New Haven & Hartford Railroad; he will see smart cities in a row, almost within stone's throw of each other, with all modern public utilities and every convenience of civilization, while almost every farm seems like a park, and nearly every town house is adorned with lawn and tree and as carefully tended as though it were a flower garden. There is thrift and prosperity everywhere, and progress is apparent outside the pages of the printed statistics. Boston's streets are as busy as those of any city in the country, and all through New England conditions are practically of one sort.

Taking Massachusetts as representative of New England, it is interesting to note that during 1903 there was an increase of over 62,000 savings-bank accounts in Massachusetts, representing about \$21,500,000, making the total deposits \$608,500,000, divided among 1,723,015 open accounts, being an average of \$353 to each. While it is true that strikes and lockouts have seriously affected the cotton industry, notably at Fall River, and that the failure of manufacturers to effect an early and complete adjustment of goods prices in accordance with the increased cost of raw cotton has to some extent injured the cotton goods trade, the industries of New England, as a whole, have no room for complaint, and even in the case of the cotton mills there are instances where a customary dividend of 10 per cent. is expected.

Regarding Massachusetts, Governor Bates states that of the 12,000 manufacturing concerns here, seven small companies moved away last year, six of them locating in other New England States. In the same period six new industries moved in and 92 new industries were organized. Since 1897 the capital invested in Massachusetts industries, says Governor Bates, has increased 34 per cent., and last year the number of persons employed by the industries increased 42 per cent.

To an unusual extent the people of New England have invested and reinvested their capital in manufactures, until there is a chain of manufacturing cities extending along the seacoast from Biddeford, Me., to Bridgeport, Conn., and, in addition, mostly not far distant from the coast, are a number of inland manufacturing cities that owe their development to their excellent water-power. While it is true that manufacturing is comparatively a latter-day development in New England, and that whaling, the East India trade, commerce and barter laid the foundations for New England's greatness and wealth,

yet today it is the manufacturing which gives the arterial blood to this body, and which makes it possible for New England to not only furnish funds for her own expansion of business, but to contribute, as no other section of the country ever has, to the upbuilding of the entire United States. No one can tell within \$1,000,000,000 perhaps how much New England has contributed in the way of investment and loan to other sections of the country, nor would it be possible to enumerate any but a small part of the enterprises New England money has financed. New England furnished the money to rebuild Chicago; she largely, and in some instances wholly, supplied the funds for the construction of Western and Northwestern railroads; she is very heavily interested in the Lake Superior and other copper mines; she is interested in Mexican railroads and enterprises. New England money was largely invested in Western farm mortgages, and now New England is putting money in Southern enterprises, not only in cotton mills and other industrial institutions, but in street railway companies and electric and gas-lighting plants.

Doubtless it will be a long time before there will be generally a more attractive field for Southerners to invest in than in the South itself, and the great opportunities there for profitable investment will probably long continue; but it is useful to note how wonderfully New England has achieved, starting with little better equipment than a citizenship of enterprising, courageous men with indomitable will and never-ceasing perseverance. If on this rock-bound coast this handful of men could in little more than 100 years make money enough to build up not only all New England, but a large part of the United States as well, we of the South may certainly take courage in the face of all that we are blessed with and find inspiration to go forward until the South will produce not only all the wealth needed for her own complete development, but enough surplus to largely engage in the development that is certain to come to the countries south of us and in the nations of the East.

While in the cost of materials and the value of the product the packing-houses and all other forms of food producers constitute the leading industry of the United States, yet in capital invested and in the number of employes and wages paid the textile industry, second on the list, far outranks food products, and cotton stands at the head of textile proper. Of the \$1,000,000,000 in round numbers invested in the textile industry in the United States, according to the census figures, considerably more than half is to be credited to New England, and again more than one-half of New England's part belonged to Massachusetts, with Rhode Island next and Connecticut third, a relationship that has existed since the textile industry was established in this country. It was a slow and painful, as well as expensive, process to establish the cotton industry here. Outside the Whitney gin, the machinery which made possible the great expansion of the cotton industry was of English invention, and England at that time prohibited the exportation of either machinery or patterns, so it became necessary for the Yankees to reinvent everything. Many attempts to establish a cotton factory in New England were made about 1789, but the first permanent success and the real beginning of cotton manufacturing in America was made by Samuel Slater, who in December, 1790, set in motion at Pawtucket, R. I., the first spindles operated by power in the United

States. Slater was a young Englishman thoroughly familiar with the Arkwright frame, the Hargreaves spinning jenny and all the machinery in use in England, and at his Pawtucket mill he trained and furnished many of the men who were to establish factories elsewhere on models adopted by him. He and his brother bought and established other mills, mainly in Connecticut, all of which have continued in existence to this day, and in one or two instances members of the family, descendants of the founders, are owners today.

The way mill interests are handed down from generation to generation is one of the interesting features of the situation. There are groups of families who are large owners of cotton-mill properties all through New England, and often the active management remains in the same family generation after generation. The son goes into the mill and serves a regular apprenticeship, so as to fit him for the management when the father, who has had a like experience, concludes to retire.

I occasionally hear the cotton industry cried down, and even our friend Edward Atkinson spoke most slightly to me about New England's cotton mills. "Forced on us by an iniquitous protective tariff," said he; "would have been better off without them; never paid an average of more than 6 per cent," etc., and he then produced statistics to show that the average wages of employes are lowest in towns and cities of Massachusetts where the cotton industry predominates. "On the other hand, take Boston," said he. "The manufactures of Suffolk county, almost wholly conducted in Boston, exceed those of any other county in the State in diversity, quality, value of machinery, persons employed, rates of wages or earnings and value of products; yet there is no large factory in the city and there are no very conspicuous examples of collective industries. You go up to Lowell or Lawrence and look through one of those big factories, and you think you have seen something great. Bosh! Come with me and I will take you down through the alleys of Boston and show you shop after shop where a few men or women are really manufacturing—making things with their hands. And these people have courage and character and are of value to the State. Do you call it manufacturing for a person to stand over an automatic machine, watching the machine do the work, and ultimately becoming as mechanical as the machine itself? Small, diversified factories are much to be desired. Here in Boston there are 271 separate branches of manufacture, represented in 7247 establishments, employing 72,142 wage-earners, who receive \$39,184,191 wages a year and who turn out products of the value of \$206,081,767.

"So far as I am concerned, the people of the South are welcome to the cotton industry, although, of course, I know they never will 'take away,' as you sometimes hear it foolishly talked, the cotton mills from England or New England. And let me give your Southern people a little friendly advice. Go slow. Don't attempt to build from the top. New England was built up by hard, practical work from small but substantial beginnings. I don't know anything more certainly doomed to disaster than a cotton mill started with a big, inflated capitalization in accordance with the plans of some promoter."

It seemed to me there was something of interest and value in Mr. Atkinson's claims in behalf of diversified industries; also, it is very true that marvelous precision, energy and business knowledge mark the men who succeed in industrial New England. Where, as in shoes, for instance, one or two cents per pair represents the possible profit, there is mighty small margin for mistakes in judgment or

slackness in management. The successful houses here have been built up from small beginnings, and expansion has come as the knowledge and capacity of the management increased. I am told it is a frequent sight throughout New England to find an immense factory, and alongside of it, grading down like staircases, two, three or more little ones, till the one-story building is reached, in which the founder of the place, sometimes a man still living, began the business. Here he stayed until success warranted a larger factory, and the various stages of expansion are indicated in the successive factories that were erected.

When it comes to cotton mills and their undesirability, however, I opine that most of us will feel disposed to take a shy at Uncle Edward. These most useful institutions have certainly had a large part in the industrial development of New England, and the way families of the early founders have clung to them, and the way dividends have been paid and the shares in the companies have increased in value, certainly indicate that where properly managed the cotton mill is a very profitable and satisfactory investment. Of course, unprofitable operation is constantly in progress alongside of more successful enterprise here as elsewhere throughout the world. Thus, the United States census of 1900 shows that 21 mills in Massachusetts, with an aggregate of 154,016 spindles, and one mill with 180 looms, which reported to the census of 1890, were not in existence when the census of 1900 was taken. Seven of these mills, with 47,680 spindles, were dismantled and their machinery sold; 13 mills, with 101,156 spindles, stood idle in 1900 or had been turned to other manufacturing purposes; one mill was burned and not rebuilt, and one was consolidated with a neighborhood mill under new corporate organization. In addition to these cotton mills, there were 15 mills manufacturing cotton small wares which went out of existence during the decade. In connection with this showing, Chief Statistician North comments thus: "In this particular industry the advance in machinery has been so rapid that it is calculated a cotton mill must practically renew its machinery once in every 10 years if it would keep its plant in a condition that will permit profitable production in competition with other establishments manufacturing the same goods with the latest pattern of machinery, the most modern labor-saving devices, the most effective methods of management and facilities for the largest production at the lowest labor cost."

I am informed that some of the mills that have for years paid 10 per cent. dividends are the most systematic and unflinching in setting apart a fund for renewing machinery every 10 years, evidently a case of cause and effect. It was along these lines that President Walmsley of the New England Cotton Manufacturers' Association moved when he declared at the recent meeting of the association at Bretton Woods that cotton manufacturers in New England would have to equip themselves with up-to-date machinery or get out of the business.

While it may be true that a community of highly-skilled artisans has a greater purchasing capacity and is a more pleasing spectacle generally to contemplate than a cotton factory community, it is undoubtedly a fact that a cotton factory development is infinitely better than no development at all; and in many places both North and South that is the alternative. Whole cities here have been founded, built up and are today maintained on the cotton industry alone, and they have contributed enormously to the wealth and prestige of the State and section. I propose to give some study to the sociological and economic side of these factory towns,

and will then have more knowledge at first hand than I now possess regarding the status of the New England factory hand. I am told, however, that the condition of the operatives here is not so undesirable as some commentators have made it appear; that the system of corporation houses has been very largely abandoned, with the result of giving increased independence and freedom of action to the factory employe; that the French-Canadians,

who form a large portion of the operatives, run up to their farms across the border from whence they came and till the soil again when work is slack, evidence of a freedom of movement far removed from slavery, and that successful experiments in the way of model cities and the establishment of textile schools indicate a tendency toward conditions as favorable as those surrounding the operatives of any industry.

ALBERT PHENIS.

## THE EXHIBITS OF MINERALS AT ST. LOUIS.

By JOHN SHARSHALL GRASTY, Johns Hopkins University.

[Written for the Manufacturers' Record.]

So interesting and instructive are the mineral exhibits in the Department of Mines and Metallurgy at the St. Louis Fair that it is a liberal education for the mining engineer, the economic geologist and the investor in mineral properties to spend two weeks in this one building in careful study. Here, without books and with infinitely greater satisfaction than with their aid, may be studied the economic geology of the world.

Each nation of the earth that boasts at all of mineral wealth has displayed here its choicest specimens. The fields from which they come and the geological horizons where found are usually shown by sections or by colored maps. This is the case also with the States. Every State in the Union, with a few exceptions, makes a special exhibit, and so diversified are these, collectively and individually, that there is much that is new even to the expert in economic geology, no matter how well read he may be in his subject nor how wide his travel.

But economic as is the nature of this vast exhibit of the world's mineral wealth, it is not so wholly commercial that it is without scientific interest. On the contrary, to be really interesting the scientific cannot be neglected, and this is usually in evidence in the best exhibits, which are those gotten up and installed by scientific bureaus, such as State and national surveys.

Within the narrow limits of a newspaper article it would obviously be impossible to describe the various State and national exhibits separately and in detail. Even were this attempted the story would not be interesting unless something were written, too, of the great mineral and mining districts that the exhibits represent. The only excuse, then, for a general description is that it will serve as an introduction to later articles in which the exhibits from the Southern States will be described and the story told of what they stand for.

Beginning with the national exhibits, the two most interesting are situated in the northern portion of the building, and they join each other as if to indicate the friendly relations that exist between the two nations that installed them. These are the exhibits of Great Britain and Japan, and though the former is several times the larger, it is no more interesting or complete than that of its Eastern ally. Indeed, without the excellent exhibit made by Canada, it is extremely doubtful whether the British exhibit, of which this is a part, would be half so good as that made by Japan.

The greater part of the space allotted to Great Britain is devoted to this one exhibit alone, and here can be seen magnificent samples of the coal, petroleum, copper, mica, asbestos, gold, copper, nickel and cobalt ores found within the confines of our northern neighbor. Its display of gold nuggets from the Klondike excites unusual interest, and around this there is always a curious crowd looking at the precious metal which has caused

so many men within recent years to brave the dangers and rigors of winter in this justly celebrated district. All of the Canadian exhibits are good, but the corundum exhibit is worthy of particular notice, since by far the greater part of the world's supply comes from this country.

A good part of the floor space of Great Britain's exhibit is given up to the publications, maps and photographs issued by the British Geological Survey. Many hours could be spent profitably looking over the literature of what, up to a few years ago, was the greatest scientific bureau in the world. The great growth of the United States Geological Survey, which has an exhibit nearby, has, however, forced England's survey into second place. The proximity of the two exhibits makes comparisons easy, and both should be seen with this idea in view. The United States survey is made particularly interesting by Van Hise's charts illustrating the now accepted theories of the genesis of ore deposits.

The Japanese exhibit adjoins the British on the east, and is situated between this exhibit on one side and the German and Mexican on the other. It is one of the best foreign exhibits in the Mines and Metallurgy Building, and one has only to spend half an hour here to learn of the wonderful advance this country has made in mineral development within the last 25 years. This is due in a large measure, though not altogether, to the work done by the Imperial Geological Survey. Anyone who thinks that Japan is far behind the other nations in geological science can rectify the error by examining the publications of the Japanese survey.

The islands composing the Japanese empire are rich in coal, iron, copper, sulphur and the precious metals, and abundant evidence of this is given by the ores that are on exhibit. There are several fine mineralogical collections made up entirely of minerals found in Japan. By means of models the Kosaka Company's smelting and refining plant, the largest of its kind in Japan, and the Manda Pit at the Mihe Colliery in Kyushu are both reproduced. There is also a model showing the system of veins in the Oshia copper mine. The output of gold and silver every five years of the past quarter of a century is represented by solid parallelograms, whilst the growth of the coal industry from 1886 to 1902 is indicated by charts. The wonderful industrial growth of Japan is shown by the increase in the coal output, which in 1886 amounted to 1,000,000 tons and in 1902 to 10 times this amount. The greater part of this came from two coal fields, the Buzen and Chihuzo, which are the great coal fields of Japan.

The Mexican exhibit, which is to the east of the Japanese, well represents the mineral wealth of that country. There is case after case of lead, silver, copper, mercury and gold ores, besides beautiful blocks of onyx, marble and building stones, and a number of fine mineral collections containing the typical Mexican minerals.



Nor is this all, for it may be learned from this exhibit that Mexico also has coal and iron; but the general impression one gets is the correct one, namely, that Mexico is pre-eminently a silver producer.

Germany's exhibit is a typical one. It consists almost entirely of charts, sections, relief maps, geological publications and models. The commercial side is entirely subordinated to the scientific. There are few minerals, but dealing with them there is a good-sized library of books. Along the walls are shelves bearing the publications of various geological surveys, and where space occurs between them are hung geological maps and charts. The floor space is taken up with tables bearing relief maps and models of mine machinery and mining communities. There is one excellent glass model of the coal fields of the Ruhr. This shows, as could be shown in no other way, the dip of coal seams and the surrounding strata.

The French exhibit is not unlike the German, for here, too, there are no large masses of ores, though there are many fine collections of minerals. Scientific instruments for mining, metallurgical and electrolytic methods, together with illustrative exhibits, and books on mining, electro-chemical and metallurgical subjects, are the chief features of this exhibit.

Each of the other national exhibits has at least some one feature worthy of notice. In the case of Italy it is her marbles. From Italy also comes the greater part of the sulphur of commerce. Brazil, on the other hand, has a wide range of minerals, but chief among these are iron, copper, silver and gold. In this exhibit is to be seen the gravels in which are found the Brazilian diamonds. Cuba furnishes a large proportion of the iron pyrites used in sulphuric acid manufacture. This and copper, iron, manganese and zinc are the chief minerals exhibited. Venezuela exhibits natural cements, iron, coal and the precious metals, and Argentine exhibits coal, copper and auriferous quartz. Like the exhibits of France and Germany, the Belgium exhibit is devoted chiefly to books on subjects of mining and metallurgy. It contains, however, a number of models and also mine apparatus of interest, particularly to the mining engineer.

One of the most interesting, as well as one of the largest exhibits, has been installed by the Standard Oil Co. This is really one of the most instructive exhibits to be seen in the Department of Mines and Metallurgy. Especially is it interesting to the chemist, for oil is here in all its styles of refinement. It is equally interesting, though, to the geologist, for not only are the methods of boring for oil shown, but also there are exhibited geological maps showing the formations in which oil is found in this country, and handsome specimens of the formations, of which Trenton limestone is the chief one.

Starting with the crude petroleum, the student may see distillates ranging from crude naphtha to lubricating oils. There are illuminating oils of various flash points, spindle oil, cylinder, valve and machinery oils and paraffine oils, paraffine, vaseline and other by-products of the crude substance. All this is the result of many years of work and investigation, and it has been brought about by the best chemists money could employ.

Of equal chemical interest, however, is the exhibit of the products of the industries of Niagara Falls. These various companies employ electro-chemical processes, and by the use of electricity separate aluminum from bauxite, make carborundum, which, by the way, is rapidly supplanting corundum as an abrasive substance; manufacture graphite by heating carborundum in the electric furnace, and produce caustic soda from common salt. Silicoxicon and alundum, an artificial corun-

dum, are also made at Niagara by heating their constituents to temperatures obtainable only in the electric furnace. The great advances being made in electro-chemistry lend this exhibit peculiar interest, especially to the chemist.

The great mineral districts of the United States are represented in the exhibits of the States in which these districts occur. In some cases the district is confined to one State and in other cases it embraces the territory of several; but however this may be, the geologist has the opportunity within a space of about nine acres of traversing and studying them all. The great Appalachian coal field, for instance, may be followed from Northern Pennsylvania through Ohio, Maryland, Virginia, West Virginia, Kentucky and Tennessee to the central part of the State of Alabama. Of less importance than this great field are the central, northern and western fields, ranging in importance in the order named. The central field, though subdivided, is embraced in the territory of the following States: Indiana, Illinois, Iowa, Missouri, Nebraska, Kansas, and in its southwestern division, Indian Territory, Arkansas and Texas. The northern field is wholly confined to the State of Michigan. The western field lies almost entirely within States traversed by the system of ranges comprising the Rocky mountains. The Pacific coast fields are also included in this division. Samples of coal are exhibited by all the States of these several divisions.

Coinciding more or less with the territory of the great Appalachian coal fields is the Appalachian oil and gas field. This field extends further to the north than the Appalachian coal field, but not so far south, Alabama being regarded as a field of possible extension. Next in importance to this field is the Lima (Ind.) oil and gas field, which covers the central and western parts of Indiana and the northwestern section of the State of Ohio. The smaller oil fields, such as those of Texas, California, Kansas, Wyoming and a few other States in the West, also have exhibits of crude petroleum and its various distillates.

Brown hematite ore, of which limonite is the most important variety, is obtained chiefly from the Southern States. The largest deposits are found in Virginia, Alabama and Georgia. This ore has some marked advantages over the red hematite, but compared with the latter it is of second importance, since nearly 75 per cent. of the ore made today is obtained from the red ore, due chiefly to the development of the Lake Superior and Alabama districts. As is well known, the Lake Superior hematites occur in several districts in Michigan, Wisconsin and Minnesota. Samples of ore from these districts are on exhibition in the exhibits made by the States in which these districts lie. Alabama hematites are to be seen in the space devoted to mineral products of that State.

One of the most remarkable deposits of iron in the world is the Clinton ore bed, which occurs in a horizon in the Upper Silurian. The extraordinary persistence of this ore is evidenced by the samples of it in the exhibits of Wisconsin, Ohio, Missouri and New York. It is found and mined in most of the States traversed by the Appalachian mountain system, and in Alabama it occurs in deposits of exceptional size and importance.

Like silver, copper varies widely in its mineralogical associations and modes of occurrence, and it is a substance which is widely distributed. But the chief deposits in this country occur in the Lake Superior district and in the region of Butte, Mont. It is true it is found in the Appalachian States, where it occurs chiefly in the metamorphic rocks, but of the many small mines being exploited in this belt those

of Vermont and those of Ducktown, Tenn., are by far the most important.

Though Michigan and Montana lead as copper producers, a good share of the product is mined also in Colorado, California, Utah and Arizona. In all these States exhibits of copper ore and the finished product are in evidence, but the most striking of all is the exhibit made by Montana. On either side of the entrance of this exhibit stand massive copper columns, and at either end of the exhibit bars of solid copper are piled to the height of 18 or 20 feet. The copper product of Montana is so emphasized in this way, reinforced by geological models of the region of Butte and by models of its copper mines, that it really might be called the Butte district exhibit.

From Maine to Georgia galena occurs in the metamorphic rocks of the Appalachian system, and it has been mined throughout this region for many years, though on a rather small scale. These mines, however, do not pay, as a rule, due to the existence of larger and more easily-mined deposits in Missouri, Kansas, Wisconsin, Illinois and Colorado, where galena occurs associated with silver in the Leadville lead-silver vein. Montana, Idaho, Arizona and New Mexico also are important lead producers.

Lead and zinc occur in the upper Mississippi valley, in Northwestern Illinois, Eastern Iowa and Southwestern Wisconsin. The greater part of this district, however, lies in Wisconsin. Here is an exceedingly productive territory, covering an area that would be included in a circle with a radius of 60 miles. All the States of this district make exhibits, but, as might be inferred from the foregoing, Wisconsin has the largest zinc and lead exhibit of the three. In the Wisconsin exhibit there is a reproduction of the typical way in which these ores occur in the Galena and Trenton limestones.

The Missouri zinc and lead district is, however, much more productive than the area just mentioned. The Joplin district includes the most productive portion of the field, which extends also into Kansas. Missouri has an excellent exhibit of these minerals not only in the Mines and Metallurgy Building, but in the Mining Gulch. A mine has been built and the minerals are arranged just as they occur in site. Nearby is a 60-ton lead and zinc mill in operation, showing how the ore is treated when taken from the mines. Lead and zinc also occur in paying quantities in Lexington county, Kentucky, and in Virginia in Wythe county. Related deposits also occur in Eastern Tennessee, and in Arkansas, in the northern part of the State, lead and zinc ore is found in large quantities, but has not as yet been developed owing to the lack of transportation facilities.

The two precious metals, which nearly

always are associated in their occurrence, are not confined to special areas in the way that the other ores which have been referred to are. Broadly speaking, gold and silver are both found in most of the Western States, though it is found, too, in small quantities in the Eastern States, in the mountains and outliers of the Appalachian system. The great silver and gold States, however, are California, Nevada, Utah, Arizona, Montana, Wyoming, New Mexico and Colorado. Localities now famous the world over are the Telluride and Cripple Creek districts of Colorado, the Black Hills of South Dakota and Nevada's Comstock Lode. All the States mentioned, and especially California and Colorado, make appropriate displays of both the precious metals.

In the Gulch, which adjoins the Mining and Metallurgy Building, one can visit coal, opal and lead and zinc mines, and see mining and metallurgical methods in actual operation. Comparing here the old Mexican method with the electrolytic processes that are now in use in the treating of copper ores, the observer is struck by the wonderful advance made within a comparatively short period in the science of metallurgy. This is all the more evident when the cyanide process of separating gold from its ores is seen in operation. Ores which a few years ago were considered absolutely valueless are at the present time treated with profit by this process, where waste is reduced to a minimum.

Drills, hoisting and ventilating machinery, and, in fact, everything used in a mine, are evidenced on every side and give the Gulch the appearance of a veritable mining camp. The experimental station of the United States Geological Survey is also here, and in its plant daily tests are made of the calorific value of coals from all parts of the country.

In the laboratory of the Bureau of Forestry systematic tests are being conducted and methods are being tried to determine the best means of preserving woods. The rapid diminution of American forests makes the investigations being conducted by this bureau of the greatest value and interest.

Before concluding this article attention should be called to the excellent opportunity which this great exposition affords in the way of advertising. A State rich in mineral or agricultural wealth has a chance here to let the world know by means of a good and representative exhibit. Exhibits of this kind are not only of interest to the spectator, but they attract capital. Unfortunately, however, this is a fact that is not generally realized. It is certainly not realized by the citizens of those States who prefer costly State buildings to creditable displays of their State's agricultural and mineral resources. A number of States have exhibits not at all worthy of their resources merely on this account.

## THE EXPANSION OF COTTON-GROWING ENERGIES.

Many of the leading Southern papers on Sunday last published a syndicate letter of several columns, written from London, dealing with the effort of the British Cotton-Growers' Association to develop cotton-growing in Africa. This letter, written in a vein of enthusiastic commendation of the work which is being done by English cotton manufacturers to free themselves from dependence upon the South for cotton, claims that the British Cotton-Growers' Association has secured 60,000,000 acres of land in Africa, and that the work of development for cotton-growing will be pushed with great vigor. It is a rather interesting fact that while many Southern papers published this letter as a piece of news, none of them, so far as we have yet

seen, pointed to the fact that, backed as this movement is by the power of the British government, it may in time be successful in lessening the South's supremacy upon the world's cotton trade unless we prepare to meet the issue. The boast of the South for 100 years, that it dominated the cotton-producing interests of the world, is now met by an effort greater than any that has been put forth in times past to destroy our supremacy, and though many high experts have claimed that the South will forever dominate the cotton trade, it is not wise to ignore the possibility of competition. It was in the light of these facts that the Manufacturers' Record suggested that the cotton-spinners of Europe be invited to come South and

study the cotton-growing capabilities of this section in order that their interest in the development of cotton-growing in the South might be enlisted, rather than see them concentrate their efforts upon the development of cotton-growing in Africa and elsewhere. Why should the South permit its domination of the world's cotton trade to be endangered, when by a united effort of the railroads and the people of the South the attention of the world could be concentrated upon the possibilities of turning immigration Southward and thus furnishing a labor supply sufficient to increase our cotton crop as rapidly as the world's requirements may demand, and the world's consumption of cotton goods will increase far more rapidly in the future than in the past. Bearing on this point we publish the invitation of the New Orleans Cotton Exchange, as voiced in a letter to the Progressive Union of that city, inviting the cotton manufacturers of the world to visit New Orleans, and in line with invitations from other points in the South.

### VISIT OF FOREIGN SPINNERS.

#### New Orleans Anxious to Welcome Their Convention.

[Special Cor. Manufacturers' Record.]  
New Orleans, La., October 22.

New Orleans is making, and will continue to make, a consistent, determined fight to secure the attendance of the world's cotton-spinners in this city in the near future. As mentioned some time since, the New Orleans Progressive Union adopted resolutions and forwarded a letter of invitation to the cotton-spinners of the world through R. H. Edmonds, editor of the Manufacturers' Record, which publication is agitating in favor of the cotton-spinners' convention because of the vast importance of such a gathering upon the future of the cotton industry of the United States.

President Sanders of the Progressive Union recently took up the matter with the New Orleans Cotton Exchange, suggesting that this body should also take steps in the interests of the proposed convention and to assist the Manufacturers' Record and the Progressive Union in securing the attendance of the cotton-spinners both of Europe and America in this city on such a date as might finally be determined upon. The movement has attracted a vast deal of attention throughout the United States, and the various cotton centers of the South are as a unit in the matter.

The following letter from M. E. Du Quesney, vice and acting president of the New Orleans Cotton Exchange, addressed to President Sanders of the Progressive Union, evidences the interest the big cotton organization is taking in the matter, and the invitation of the Cotton Exchange will undoubtedly carry more weight than any similar letter from any other organization in the United States:

"It affords me pleasure to state that the board of directors of this exchange join heartily in the move to have the cotton-spinners of the Northern States and of Europe visit the American cotton belt for the purpose of informing themselves by actual personal inspection of the conditions existing in the section where most of the world's supply is produced, and what can and has been done by an intelligent and progressive people in advancing the cotton-manufacturing industry.

"While the figures of Southern cotton consumption are a wonder in themselves, the realities can never be so thoroughly appreciated as by actual personal inspection. That we should have forged ahead from a minor position to the front rank of the world's greatest cotton-spinning sections, all in an insignificant stretch of time as counted in the life of a nation, is

of itself without a parallel; but that we should have done so with practically no experience as cotton manufacturers, with naught but inexperienced raw labor which had to be taught and trained from the very bottom up; in fact, that we should have accomplished all this with naught but the raw material and the money (not overplentiful at that) to build factories and buy machinery, must, to be properly appreciated, be personally inspected by the manufacturers of other sections and of other countries, whose knowledge and experience have come to them from generation to generation, handed down from father to son of a long line of employers and workpeople who have scarcely known aught but details connected with the manufacture of cotton.

"And yet we, who a few decades back had neither knowledge nor experience, can show to our visitors factories and appurtenances all of the latest and most approved patterns, run by highly skilled workpeople, so equipped as to meet the keenest competition born of centuries of accumulated knowledge and study. We can show them model villages and all that contributes to the comfort and happiness of the mill hands, whose welfare is so essential to the prosperity of a manufacturing center; and, to crown all, can extend to the visitors a welcome peculiar to the cotton States which has given to Southern hospitality world-wide renown. Nowhere else in the world probably can the mill be found situated beside the cotton field, and nowhere is the producer and consumer brought into such close touch. We are certain that the lessons to be learned will prove of lasting value to our visitors, besides cementing a kindly feeling which should exist between all classes and branches of the world's greatest product.

"The New Orleans Cotton Exchange cordially invites its friends the spinners of the North and from abroad to come among our happy and prosperous people, and offers the hospitality of the Crescent City with the sincere hope that a convention of the world's cotton consumers be held within the confines of New Orleans, which handles more cotton between the producer and consumer than any other center in the world, and has perhaps closer relations with farmer and spinner than any city on either side of the Atlantic."

### MEMPHIS EXCHANGE INVITATION

#### In Accord with the Purpose to Show the South to Spinners.

Mr. Henry Hotter, secretary Memphis Cotton Exchange, writes to the Manufacturers' Record:

"I am instructed by President E. F. Webber of the Memphis Cotton Exchange to extend through you to the cotton-spinners of Great Britain and the Continent a cordial invitation to visit the South and meet in convention at some Southern point for the purpose of studying the question of growing and manufacturing our great staple crop. This exchange is heartily in accord with the movement and hopes your efforts will be crowned with success."

### GEORGIA WILL WELCOME.

#### Invitation From the Industrial Association of That State.

Through Mr. F. B. Gordon, Columbus, Ga., president, the Georgia Industrial Association has sent the following invitation to the Federation of Master Cotton-Spinners' Associations, Manchester, England:

"I have the honor, on behalf of the cotton mills of Georgia, a large majority of which belong to our association, of extending to your Federation, representing, as it does, the cotton-spinners of Manchester, a most urgent and cordial invitation to attend a convention which it is now

contemplated shall be held in the South at an early date. It is the desire of our association that this convention be held in the city of Atlanta, Ga., the Gate City of the South, and perhaps the most central point for the convenience of the American manufacturers who would desire to meet your members upon such an occasion. The main object of the meeting and the advantages to be gained by all interested in the growing and spinning of cotton are too obvious to need any extended elucidation here. We trust that your members will accept the many hearty invitations that have been sent from this country."

### A CURIOUS ENGLISH VIEW.

#### A Textile Paper Becomes Scriptural in Its Suspicions.

A couple of periodicals in this country purporting to represent especially textile interests have betrayed rather ridiculous suspicions about the plan to bring English spinners to this country. These suspicions are matched from the English side by the Textile Recorder of Manchester, which is afraid that if the manufacturers of England come over and study the question, they will abandon their cotton-growing experiments in Africa. The Recorder says:

"We have received advanced proofs of a report which is to appear in the next issue of the Manufacturers' Record of Baltimore of the meeting of financiers and bankers interested in the Southern States, which was held in New York on September 16. The meeting was the outcome of the efforts of Mr. Richard H. Edmonds, the editor of the Manufacturers' Record. Of Mr. Edmonds it may be said that no more untiring advocate of Southern interests can be found than he. For several years, when far less attention was attracted by the possibilities of the Southern States as a home of industrial enterprises than is now the case, he labored unceasingly to bring about a recognition of them, and, having a close acquaintance with his efforts for many years, we may sincerely congratulate him on some of the fruits of his labors. But having said this, it by no means follows that the interests he advocates so strenuously and those of spinners in this country are identical. In the case of a country whose manufacturers openly avow their intention of pushing our cotton industry out of existence, and who give us an earnest of their intention by the imposition of duties which practically exclude our cotton goods from their market, we may be excused for looking upon this proposition with a wary eye. Bankers and financiers are not usually philanthropic persons, and this congerie of Southern bankers who have sent their invitation have no more philanthropy in their nature than they know what to do with. One hears a good deal of American methods, but one thing is certain, that no American in dealing with what he calls a 'business proposition' ever takes more than one eye off the dollar-making potentialities contained within it. That we are making no charge which cannot be substantiated is shown by a quotation from a speech delivered at the meeting from which the invitation came by Mr. John Skelton Williams, president of the Bank of Richmond. He said: 'If England will send us her cotton manufacturers to study our conditions and her working people to help to increase the productivity of our land, we will furnish a climate for white men to live in, the best society on earth, and the cotton, and if they want to establish cotton factories here we will furnish them with the best sites on earth.' How kind. But we miss the necessary concluding words, 'for a consideration.' Is anything clearer than the purpose clearly outlined in the offer? 'De-

sert your country, transfer your interests, and we, the philanthropic bankers of the United States, will bless and embrace you—with our tongues in our cheeks.'

Surely our spinners, whose property, if not their existence, depends upon the freedom of the supply of cotton, cannot seriously intend to walk into such an obvious trap. Surely 'in vain is the net set in sight of the bird.' The Pall Mall Gazette the other day spoke of the Americanization of the cotton trade of this country, evidently ignorant that the word has come in some cases to be a reproach and not a recommendation. For the past two or three years great efforts have been made to restore a movement which ought never to have been allowed to die when once started, as in the sixties—the movement for further cotton fields in places under our own control. The German spinners and government are now interested in the matter, and we may take it that whatever our people may do, they, having set their hands to the plow, will not look backward. A few months ago the textile papers in the United States were scoffing at the efforts of the Cotton-Growing Association; they are now evidently regarding the movement with more respect and seek to trail the hounds on to another scent. Throughout the whole of the speeches the same sentiment prevailed. 'Get these poor fools who are good customers of ours, but of whom we decline to be customers if we can avoid it, over here, and persuade them that "Codlin's the friend—not Short."'

The thing is hardly arguable from our point of view. To whom do we owe the severe crisis of the present year? and what surety is there that a recurrence of it will not take place? When has the American spinner or manufacturer considered his British or Continental confrere? We may refer our readers to the extract contained in our correspondent's article on the American cotton manufacturing industry in the present issue, which, with characteristic American boastfulness, sets out their aspirations and intentions. In the face of this avowed intention, at a time when the efforts towards an extension of the cotton-growing area have taken concrete shape and are promising success, is it wisdom for our spinners to allow themselves to be cozened by promises, however specious, which have for their avowed object the frustration of the movement at a time when the chances are so much greater than they were 40 years ago? We venture to urge upon all concerned that in view of their past experience any such action will be suicidal, and that if by reason of supineness or betrayal the new cotton-growing movement is checked, spinners will find that whereas in the past they have been 'whipped with whips, in the future they will be whipped with scorpions.' The American ambition is to capture the manufacture of cotton, and when they want the cotton, how much shall we get? Enlarge your area of supply and pursue the efforts to do so that are now being made is the only advice worth acting on, in spite of the songs of Circe that are being so sweetly sung."

[The Manufacturers' Record wants to show you that it is possible for the South to grow all the cotton the world needs, and that it would be wiser for the English manufacturers to come over and steady the situation instead of trying to grow cotton in Africa. Won't the editor of the Manchester Textile Recorder come over and see for himself?—Ed. M. R.]

### Hydraulic Tools Wanted.

Messrs. Van der Linde & Teves, Keizersgracht 382, Amsterdam, Holland, write the Manufacturers' Record that they are in want of hydraulic tools, such as hammers, drills, chisels, etc., manufactured by American firms.



# DEVELOPMENT OF THE FLORIDA WEST COAST

[Special Correspondence Manufacturers' Record.]

Sarasota, Fla., October 24.

The first railroad in the State of Florida and the third in the United States was built in Calhoun county. It ran from Iola to St. Joseph, on the Gulf, a distance of 30 miles; was built in 1838-1839, was torn up in 1841 after a short and very unprofitable existence, and the rails and rolling stock were carried to Columbus, Ga., and placed on a road from Columbus to Macon. At the present time the patriotic Floridian can point to no better evidence of the natural productiveness and natural resources of his State than to the thousands of miles of railroads built by progressive men for the purpose of sending to the markets of the world the products Florida has to offer to the great centers of trade. The history of railroad construction in Florida is fraught with the same interest that it is in every part of the United States. The greatest epoch in the history of railroad building was during that period from 1880 to 1890, 10 years which saw a great deal of capital expended and many parts of the State opened to the commercial world. A great many miles of railroad was constructed by the assistance of the State land grants, the State government having been liberal with the disposition of the public lands in the interest of the development of the State. About 1880 there came a man upon the scene, Henry B. Plant, who organized and built the Plant system of railways, and who was the greatest developer this State will ever know. He spent the greater portion of a lifetime in railroad building, and his policy of encouragement, development and public spirit served Florida well. During the past decade his greatest lifework was performed and the great railroad system in this State, now known as the integral part of the Atlantic Coast Line, forms one of the greatest monuments to the life of the great Southern railroad builder. Perhaps it will be pardonable in the writer if a few of Mr. Plant's achievements in the face of almost insurmountable difficulties are written here.

In 1880 Mr. Plant, after making trips through a semitropical wilderness on the west coast of Florida, and at that time inhabited only by a few people in widely-scattered villages many miles apart, and seeing the great agricultural, mineral and commercial possibilities, he decided to make it his life's work to develop this section. Mr. Plant's lines entered the State at four different points, viz., Jacksonville, Live Oak, Monticello and River Junction. At these points he made connection with railroads leading to different portions of Florida, and as rapidly as possible he added road after road, either by purchase, and where new roads were needed they were built. He acquired through such purchase or lease the following: J., T. & K. W. Ry., Jacksonville to Sanford, and on to Tavares; Florida Southern Railway (narrow gauge), Palatka to Punta Gorda; the Orange Belt Railway (narrow gauge), Monroe to St. Petersburg; St. Johns & Lake Eustis Railroad (narrow gauge), Astor to Lake Griffin; Winston & Bone Valley Railroad, and a short narrow-gauge road from Sanford to Kissimmee, and which afterward became the South Florida Railroad, Sanford to Port Tampa. The above narrow-gauge roads have all been made wide gauge. Mr. Plant was not content with the acquisition of these roads, but immediately made preparations for the construction of the West Coast Railway, with branches to Lake City, through Gainesville and other points on to the phosphate mines of the west coast, and to a connection with the South Florida Railroad at Lakeland and to Tampa Bay. Be-

fore completing the above Mr. Plant found it necessary, in order to gain an outlet for his system of roads already acquired, to complete the link from Kissimmee to Tampa. This was accomplished in the early eighties, and gave to Tampa her first railroad at that time, the South Florida Railroad, afterward, with connecting lines, called the Plant System of Railways.

The great promoter found that it was necessary not only to build railroads, but at Tampa he shortly afterward began the construction of immense docks and wharves at a cost of millions of dollars, dredging deep channels at an enormous expense, creating an outlet by sea for the vast products of the interior of the west coast of the peninsula, and carried to the seaboard by his numerous lines of railroads. Long before the immense wharves were ready Mr. Plant had ships running from Tampa to Key West and Havana and other ports, transferring passengers and freight to and from his vessels at great risk by small tugs, lighters, etc., to be transported to Tampa. At this time, about 1881, there was not sufficient depth of water to allow more than very small vessels to come to the wharves at Tampa. The writer made a trip on the old steamship Florida, Tampa to Cedar Keys, at that time one of the Plant steamship lines.

The Peninsula & Occidental Steamship Line, now plying between the ports of Tampa, Key West, Havana, Nassau and Miami, is the name of the steamship business which had its inception at Tampa. Mr. Plant was the first man who ran steamships between Florida and Cuba. The immense wharves, elevators and electric-light and water-works plants at this port, built exclusively for the use of his shipping, and an army of employees living there and the miles of side-tracks to handle the tremendous shipping was worth inspecting. Mr. Plant also erected the finest hotel in the world at that time in Tampa, the famous Tampa Bay Hotel. The building was of brick, stone and iron, costing about \$1,000,000, while furniture and works of art from all parts of the world cost \$500,000. Grounds surrounding the hotel abound in tropical and semitropical trees and plants. In the grounds opposite the main entrance is a costly monument erected in memory of this famous developer and Christian gentleman, Henry B. Plant. It will pay anyone who is in the least interested in Florida to travel miles to take a view of this magnificent building and grounds and spend a day or more within its hospitable walls, and a side trip to the port, a few minutes' run from the hotel, will repay you a thousandfold and be an object-lesson to you.

The project of draining the Everglades also attracted the attention of Mr. Plant, and in the early nineties he requested Mr. C. E. Ingraham, now vice-president of the Florida East Coast Railway, to explore this vast tract of land, consisting at a conservative estimate of 5870 square miles, or about 3,750,000 acres of absolutely virgin soil, but which has been fertilized by animal and vegetable life through many centuries. About 1,000,000 acres of this vast tract of land lies or borders on the west coast of Florida, in Monroe and Lee counties. The work of draining is now in progress, and I can confidently predict the opening in Florida within a very few years of a vast tract of land of unprecedented fertility. The possibilities of this great Southern tropical peninsula are limitless, and when transportation facilities are fully developed the boom will be on in earnest. At the time of Mr. Plant's visit, Tampa, now a hustling, thriving city of

40,000, was only a straggling fishing village. What the Plant system of railroads and the Seaboard Railway have done for the west coast of Florida can be seen in the following exports from Tampa and other ports on the west coast now connected by a perfect network of railroads. The following are only the principal articles of exports:

## Tampa Exports.

Articles.	Quantity.	Value.
Lumber, all kinds, feet..	1,314,442	\$125,678
Naval stores, barrels....	20,927	44,112
Phosphate, tons.....	370,794	2,410,101
Cigars, number.....	307,670,000	11,734,100
Fish and oysters, pounds.	3,851,000	115,720
Cattle, number (including also subport of Bradentown).....	8,541	102,492
All other exports.....		115,974
Total exports.....		\$14,648,177

Some exports by rail of manufactured tobacco and fish and oysters are included in the above figures. The increase of the commercial business of this port in 1904 was \$3,600,000 over that of 1902, or practically about 20 per cent.

## Key West Exports.

Articles.	Quantity.	Value.
Cigars, coastwise, number.	29,000,000	\$2,100,000
Sponges, pounds.....	300,100	305,000
Phosphate, tons.....	35,000	245,000
Fish, all kinds, pounds....	275,000	13,750
Other exports.....		60,000
Total exports.....		\$2,784,750

## Port Inglis Exports.

Articles.	Quantity.	Value.
Phosphate, tons.....	109,499	\$1,094,990
Lumber, tons.....	200	4,000
Fish, tons.....	8	2,000
Cedar, tons.....	44	1,700
Oysters.....		500
All other exports.....		19,536
Total exports.....		\$1,122,726

This is a new port, and its business is confined almost exclusively to the exportation of phosphate rock. The above figures include all business from September 25, 1902, to December 31, 1903.

## Punta Gorda Exports.

Articles.	Quantity.	Value.
Phosphate, pebble, tons.....	66,655	\$330,275
Cattle, number.....	9,659	116,028
Total exports.....		\$446,303

The above are only for ocean-going exports. Were overland exports included the volume of business would show double.

As no authentic record is kept of the enormous fruit and vegetable shipments by the custom-houses, I include them with many other articles of overland exports, as this information had to be obtained from many sources, and a certain amount of estimation exercised in arriving at some of the results, but where there has been any doubt as to correctness, the matter has been treated with the most careful consideration.

There were exported by rail and river 1,978,000 packages of vegetables, having a value of \$2,240,000; oranges 1,300,000 crates, at a value of \$2,600,000 (crop of 1903), and 35,000 crates of other citrus fruits, valued at \$165,000; cotton, short and Sea Island long staple, 58,000 bales, at a value of \$2,900,000; phosphate 187,000 tons, value \$1,496,000; lumber 95,000,000 feet, value \$950,000; tobacco, Florida grown, 1,950,000 pounds, value \$773,000; fish and oysters, not included in previous tables, to the value of \$885,000; 2450 carloads of melons, worth \$250,000; 2,200,000 quarts of strawberries, worth \$450,000; peaches and pears valued at \$240,000, and about 9,000,000 pineapples, worth over \$1,000,000; about 325,000 pounds of wool, worth \$55,300—or a total overland exports of close to \$15,000,000.

There are a number of other exports not mentioned above which would swell the total to a much larger figure. Among the most important may be mentioned hides, including alligator, furs and skins, roots and medicinal herbs, moss, tropical and subtropical fruit trees and plants, economic plants and trees, foliage and decorative plants, palms, bamboos, oats, corn and grasses, manufactured articles, sash, doors and blinds, tar, cane syrup, fertilizers, shells, tannic acid, starch, cassava

and coontie, horses, mules, sheep and goats, kaolin and fuller's earth, clams and clam bouillon in cans, cove oysters, guava and other jellies and preserves and marmalades, orange and strawberry, wines, etc. Conservatively estimated, I think that at least one-half of the figures in estimates of exports by rail and river should be credited to the west coast peninsula of Florida.

With the volume of commerce like this under present conditions, the future of Florida, and especially of the west coast peninsula, seems bright, and so it is, with a physical conformation unlike any other section of the Union, a soil of great fertility, a climate embracing almost every latitude of the semitropics, and that yields products common to every clime, with splendid water-power awaiting development, great forests of magnificent timber, mineral deposits of unknown value, and, above all, harbors spacious enough and deep enough to float the merchant marine of the world.

No other State is better situated to command the commerce destined to flow through the isthmian canal when completed, and it must follow as a necessity to the success of future trade that manufacturing industries of every kind shall establish themselves in close proximity to the materials to be worked up and at the point of embarkation. Competition in freight rates demands that the fewest transfers possible be made where competition in business is keen, so that when the canal opens up the long-wished-for route to the Orient, and the rush for trade begins, then will the superior inducements for the industrial activities offered by the deep-water harbors of Florida be fully recognized and appreciated and the commerce of today will appear but a pigmy by comparison.

Agriculture is the very backbone of commerce, and combining these products with those of the forests and mines, we have the most important adjunct in the best development of a community or a State, and when we consider the vast area of the rich and prosperous country to the north of us, which will pour its teeming millions of wealth-bearing products through the splendid harbors that lie along the coast, the mind halts at the possibilities of the future. No one can overestimate the value of these gifts of nature, for with the expansion of our trade and the enormous increase in the volume of our exports during the last few years there has also come a marvelous enlargement in the size and carrying capacity of vessels employed in ocean commerce. This means greater water displacement and deeper draught, and the depth of water must be provided if these insatiable monsters are to yield fair returns on their cost, at the same time carrying freight which commerce can afford with profit. The harbors of Florida offer just these facilities and fill the requirements thus demanded, and when the canal shall have been constructed and the great stream of traffic flowing down from the almost limitless interior seeking an outlet to new and innumerable markets in other lands that great waterway is to create for American enterprises, the harbors of Florida will be the distributing points for this vast commerce, whether from within or without.

To give all the details of the enormous advantages of the west coast of Florida, to enumerate the many advantages and opportunities yet to be developed, to give concise detail to the industries already established and of the shipping facilities now enjoyed, from the enormity of conditions supplied by the Atlantic Coast Line and Seaboard railroads to lesser and yet large tonnage afforded by local institutions, would take more space than these columns afford.

WM. HANSON.

## TRAINING IN AGRICULTURE IN NORTH CAROLINA.

By CHARLES WILLIAM BURKETT, Professor of Agriculture.

[Written for the Manufacturers' Record.]

The Agricultural and Mechanical College of North Carolina is an institution of high grade for scientific and practical training in agriculture, engineering and cotton manufacturing. This technical training is combined with such general instruction as will tend to broaden the student and make him an educated and intelligent citizen, as well as a trained man in his work. To this end the practical is combined with the general; the hand is trained as well as the brain.

While the leading purpose of the college is to furnish technical and practical education, the other subjects essential to liberal culture are not omitted. In short, the college is intended to furnish a broad, liberal education, and at the same time such technical instruction and practical manual training as are indispensable to industrial professions and occupations. It is not a place for young men who merely desire a general education without manual or technical training, nor for students lacking in physical development, mental capacity or moral fiber, nor for those who are unable and unwilling to observe regu-

completion, when the student is graduated with the Bachelor's degree.

The short course in agriculture is intended for those who have neither the time nor the money for the full course. Instruction in this course is mostly of a practical nature, covering the practices and processes relating to agriculture, horticulture and dairying. Two years are required for completion, at the end of which a certificate is awarded.

The dairy course and the winter course in agriculture are each 10 weeks in length, extending through the winter term of each year. The work is wholly of a practical nature, dealing with many problems connected with the life on the farm and in the dairy.

Instruction is by laboratory work, supplemented by text-books, lectures and reference readings, which are constantly assigned from standard volumes and periodicals. Laboratory methods of study are especially helpful in these courses, and are adapted to the need of the student. A liberal equipment is being provided for student use and for purpose of illustration. Agricultural education consists of the

erties, combination and technical uses, and the application of chemistry to agriculture and the arts and manufacturing. Next follow courses in organic chemistry and qualitative and quantitative analyses of various products in their relation to agriculture.

The study of physics receives full attention during the whole sophomore year. Everyone recognizes the importance of being acquainted with the general laws of mechanics, acoustics, heat and electricity, and their value to the farmer. The work consists of lectures and recitations, supplemented by experimental work in the laboratory.

Considerable attention is given throughout to the study of zoology, entomology, physiology and bacteriology. This work is taken up in the first year and extends throughout the whole course, beginning with the general introduction to the study of animal life and concluding with the study of nature and processes of growth and development. Entomology is taken up in the winter term of the first and last years, with a review of the classifications, structure, characters and biological relation of insects, with a special study of injuries to cultivated crops and domesticated animals, and of the means of preventing the injuries.

The study of the sciences occupies about

operations that are of use and value to the farmer.

The agricultural student receives instruction also in military science and tactics, English language and literature, history, political science, mathematics, etc.

Every agricultural student studies the soil. He is taught to analyze the soil; he studies the physical properties and finds the number and size of the grains in the soil. He is taught the use of fertilizer and how to calculate their value and the manner and methods of irrigation and drainage and of tillage, and the effect and use of various farm implements in such processes. He studies the use and influence of fertilizers on the amount, character and composition of farm crops, and upon each when grown in succession or together; the economic sources of fertility, fertilizers and manures and their value and use under extensive and intensive methods. During the course practical exercises in testing the physical properties of soils, determining the relation of soils to heat, moisture, air, fertilizers, etc., are performed.

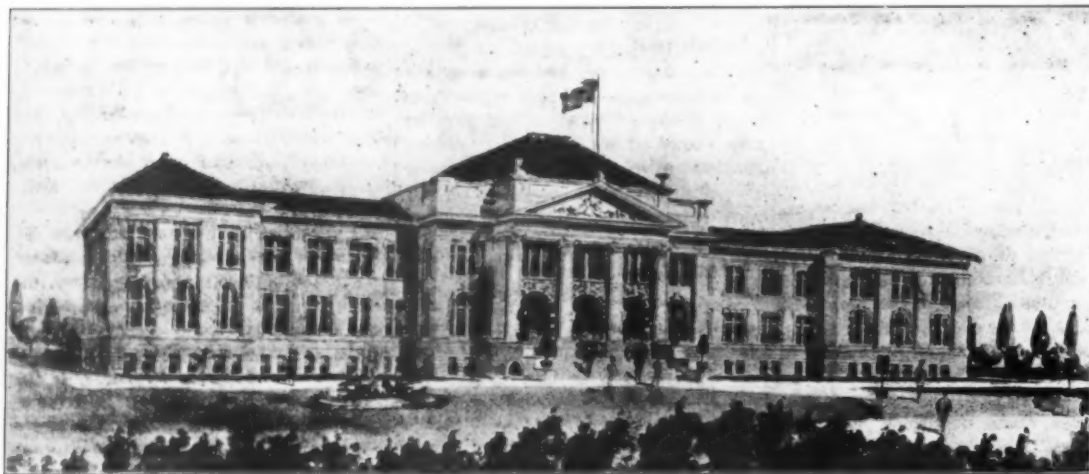
The course in farm equipment consists of lectures and recitations upon selecting, planning and equipping farms, planning and erecting farm buildings, farm vehicles and machinery, power, water and drainage, practical exercises in drawing plans of farms and farm buildings, leveling and laying drains, dynamometer tests of wagons and farm implements, etc.

A course in farm crops is required in the junior year, and consists of lectures and recitations upon the history, production, marketing and harvesting of farm crops, including grasses, clovers and other forage crops. In connection with this the student studies the theory and science of soil preparation, methods of seeding and tillage of the various farm crops, the planning of farm work, including the relation between the number of live-stock and the size of the farm, program of work for the season and the management of farm help.

During the sophomore year, and again during the senior year, the young men spend one afternoon each week in the college barns or the barns of the leading breeders of the State, learning the characteristic forms of the prominent breeds of horses, cattle, sheep and swine. They examine the animals, scorecard in hand, until they are able to discriminate accurately between good and poor animals of the same breed. They learn how to pick out good cows for the dairy or for beef, to select a good roadster or a flock of lambs for winter feeding. When the eye and judgment have been thoroughly trained the student may lay aside his scorecard and form his opinion without its immediate aid.

The wants of the practical farmer are kept clearly in mind, and the trend of instruction is to make the student thoroughly familiar with the appearance of good specimens of the various breeds, and at the same time make them competent to select good stock or to sell them without being imposed upon by unscrupulous dealers.

The course in stock feeding follows in the spring term after a knowledge of chemistry has been obtained, for this is necessary to a clear understanding of the principles of stock feeding. The work consists of lectures and text-book work on the principles of feeding and foods and nutrition, supplemented with practical work at the barn, so that the young men can come in immediate contact with the feeding materials that should find place in every stock or dairy barn, and learn how to combine and use them. The fundamental activities of the animal body are first considered, and then the foods which afford the material for these activities, whether in construction of body tissue or



NEW AGRICULTURAL BUILDING OF NORTH CAROLINA AGRICULTURAL AND MECHANICAL COLLEGE.

This building will be 208 feet long, 74 feet wide and three stories high. It is to be of gray press brick and covered with tile roofing. On the first floor, which is combined with the basement, one-half, or 4800 square feet, of floor space will be devoted to dairying; the other half of this floor will be devoted to live-stock judging and farm butchering, for it is expected to teach the students stock judging, slaughtering of farm animals, cutting up of meats and curing the same, the making of sausage and the handling of meat products. On the middle floor will be the classrooms and the offices of the department, a laboratory for the study of farm machinery, where machines will be taken down and set up again, and the student given thorough instruction in the handling of farm machinery. On the same floor will also be a large laboratory for the study of soils in all of their phases, and also the study of agronomy and plant production. The third floor will be devoted to botany, physiology, zoology, bacteriology and veterinary science. Each room and laboratory has been especially planned for its particular purpose, and the building, from basement to roof, is adjusted and planned as well as modern ideals in agricultural education are known.

larity, system, order and economy in their daily lives and work.

The college offers five distinct kinds of instruction:

I. Agriculture—1. Four-year course in agriculture; 2. Two-year course in agriculture; 3. Winter course in agriculture.

II. Engineering—1. Four-year course in mechanical engineering; 2. Four-year course in civil engineering; 3. Four-year course in electrical engineering; 4. Four-year course in mining engineering; 5. Two-year course in mechanic arts.

III. Chemistry—1. Four-year course in chemistry; 2. Four-year course in dyeing.

IV. Cotton Manufacturing—1. Four-year course in cotton manufacturing; 2. Two-year course in cotton manufacturing.

V. Normal Courses—1. Two-year course for rural teachers; 2. Two-year course for city teachers; 3. Summer school for teachers.

The regular agricultural course, the mechanical, civil, electrical and mining engineering courses, the chemical course, the course in cotton manufacturing and the course in dyeing require four years for

practical application of various sciences to the processes and practices of agriculture, horticulture and dairying. To be well trained in agriculture the student should have thorough instruction in botany, chemistry, zoology and physics. Every student on entering any course in agriculture takes up at once the study of botany. The instruction begins with lectures and laboratory study of the minute structure and physiology of plants, with special reference to the higher forms, and continues through economic and physiological botany, and a study of the more important fungus diseases of cultivated plants, and the means of preventing their injuries.

The study of chemistry is entered upon in the first term of the sophomore year, and continues through the junior year. The elementary chemistry consists of lectures and laboratory manipulations. The lectures are illustrated by appropriate experiments, and embrace the history of chemistry, the laws of chemical combination, elementary substances, their historical and geographical distributions, prop-

erty, combination and technical uses, and the application of chemistry to agriculture and the arts and manufacturing.

The agricultural students in both the two-year and four-year courses take up the study of drawing and shop work, not with the idea of receiving an "accomplishment" or learning how to make "pretty things," but because they broaden and refine and lead to a keener appreciation of the beautiful in nature. Besides, a knowledge of these studies in their theory, practice and history makes art more applicable in matters of every-day life. They train the hand and eye in unison, and prepare the student for his work in landscape gardening, farm equipment and farm machinery.

The shop practice includes the use of tools, putting tools in order and the construction of a series of exercises in carpentry, woodturning and patternmaking, including sawing, planing, mortising, splicing, framing and other work involving the use of ordinary tools. There is work also in blacksmithing, including the forging and welding of iron and steel and other



of animal products, such as meat, milk, etc.; second, dynamically, as supplying the potential energy for these processes, and for labor, speed, etc. A study is also made of the development of the animal after birth, and the phenomena of animal nutrition from economic standpoints, in which the animal activity is considered as an agent for transforming energy and the resultant product as a source of profit.

During the course in breeds and breeding the student is taught the principles of breeding and mating animals and to understand and properly interpret pedigrees. He is taught the origin of breeds of domestic animals and their distinguishing characteristics, the adaptation of breeds for particular purposes and their value for grading, accompanied by critical study and practice in the art of judging, both as to breed, type and as to constitution and individual merit; also the care and management of the live-stock of the farm as to housing and feed, particularly directed to economic sources of feeding-stuffs, their equivalency and suitable preparation.

Instruction in dairying is given to all students in the agricultural course. Methods of securing cleanliness in all dairy operations, of properly caring for milk, of ripening cream, separating, manipulation and churning the butter are taught. The dairy-room is equipped with creamers, separators, cream-ripening vats, churns and workers, with the use of which the young men become acquainted by daily exercise.

A course in farm machinery consists of the study of modern farm machinery, a comparison of various kinds, study of draft, the efficiency of work done, etc. A whole term is devoted to practical work with the farm implements and tools. Plows, harrows, cultivators, planters, corn and wheat harvesters and mowers are taken apart and set up again, so that the student will become familiar with the arrangement of the parts and be able to repair them when out of order. This course follows the work in carpentry and blacksmithing, so that the student is especially equipped for training in farm machinery.

The instruction in horses, cattle, sheep and swine follows the previous study in breeding, feeding and management of four important classes of live-stock. The whole is a critical study of horses, cattle, sheep and swine, expert judging in each class and practical training in feeding and management.

The closing work of the senior year is a study of the history of agriculture and the business side of farming. The present agricultural methods in various countries, the cost, relation and profits of the various farm operations and systems are taught. In connection with the practical instruction in agriculture is placed horticulture and veterinary medicine.

In the line of horticulture the student is taught vegetable gardening, fruit culture, horticulture, landscape gardening and forestry. All the details of horticultural practice are done in the laboratory and on the horticultural grounds.

Veterinary medicine is considered from the standpoint of anatomy, the prevention of diseases and their treatment, with clinical practice.

There is a large amount of work on the college farm, experiment station, campus, gardens, orchards, greenhouses, etc., which is done by agricultural students, and for which labor they are paid current prices. By this means, with what can be earned during the summer vacations, it is possible to defray all the necessary college expenses.

Besides this, the board of agriculture appropriates \$2000 for student labor, which offers opportunity for many to earn much of their expenses, and at the same time to receive instruction in practical agriculture.

Applicants to the four-year course in agriculture are examined in arithmetic, algebra (through simple equations), English grammar, analysis and composition, and American history.

Applicants to the two-year course in agriculture over 20 years of age are not required to take any examination.

No examinations are required for admission to the winter courses in dairying and agriculture.

We have now 142 true-blue, simon-pure agricultural students at the college. Three years ago we had only 17.

West Raleigh, N. C.

### BETTER PRICES FOR IRON.

#### The Tendency at Birmingham Is for Further Advance.

[Special Cor. Manufacturers' Record.]  
Birmingham, Ala., October 23.

The promise of better prices, as indicated in previous letter on the iron market, has been fulfilled, and it looks as if they will go still higher. There are very few sellers, and then only for limited amounts. The fact is, the output for the balance of this year is pretty well covered by sales made against it, and there is very little iron unsold that can be delivered on fresh sales. There is no diminution in the demand, and the iron as offered is readily absorbed at current values. The trouble is not in the price, but it is in getting the iron wanted. The price has been advanced to bring out the iron, but there is very little to come out. There is more or less inquiry for delivery for the first half of the coming year, but in nearly every case they are being turned down. Sellers are indifferent about placing deliveries for the coming year, especially at prices based on current values.

There was one sale reported early last week of 5000 tons for delivery the first half of next year on the basis of \$12 for No. 2 foundry. When made it was considered a good sale; but its duplication now is a matter of grave doubt; in fact, it is hard to say at what price an order for that delivery could be placed. No seller is seeking orders for that delivery or naming price; but there are buyers in the market constantly for that delivery, showing a confidence on their part in the maintenance of prevailing prices. There were sales of No. 1 foundry at \$12.50 the past week, and No. 1 soft sold at the same price. There were sales of Nos. 2 foundry and soft at \$12 and on down, until, in what is termed special cases, \$11 was named, and the iron was taken and more was wanted. The sales were not of any magnitude simply because the furnaces were not in condition to meet the demand.

In all the sales offices just now there is what you might term a censor, who closely scrutinizes the orders received and parcels out the proportions so that each may receive a part. Very few orders of any consequence are accepted from any individual buyer. Some of the interests are out of the market entirely and have notified their sales agents to accept no business and to name no prices. Some of the business that has been coming of late has been from Eastern points, and some of it has been from certain Western points, while some Southern points have been moderately good buyers.

No. 3 foundry has been in good demand. The price was sprung without difficulty to \$10.50, and the amount sold was materially less than the market was willing to take. There is one lot of 1000 tons on the market now at \$10.50 flat. It carries no commissions with it. No. 4 foundry sold at \$10, and gray forge would bring that price; but the aggregate sales of all the grades of the entire market are very moderate simply because we haven't the iron to meet the demand. The market looks

very strong and the tendency is towards higher prices.

The Underwood Coal Co. sold its holdings last week to the Shulers for a price aggregating over \$250,000. The purchase gives to the buyers complete control of all the raw material their wants will require, and gives them possession of one of the finest pieces of coal property in the State.

The Brantley Manufacturing Co. was organized the past week. It is capitalized at \$100,000, and will furnish supplies to cottonseed mills and gin works.

The strike seems to be on the collapse. You hear very little about it now. The operators declare that they are gaining ground every day and receiving accessions to their forces every day. J. M. K.

[Special Dispatch to Manufacturers' Record.]  
Birmingham, Ala., October 25.

One sale of 350 tons No. 2 foundry is reported at \$12.50. Numbers of sales are reported at \$12. No. 3 foundry is quoted at \$11. Some ask \$11.50. One lot of 1000 tons is held by outside offering at \$10.50; net is equal to \$10.75 regular. Fair orders and strong market. J. M. K.

### PYRITES MINES AND FURNACES.

#### A \$500,000 Company Formed to Operate in Virginia.

For several months past experienced miners and manufacturers of pyrites have been investigating pyrites deposits near Pulaski, Va. The parties interested have found the results satisfactory and have chartered the Pulaski Mining Co., with a capital stock of \$500,000, to develop some 30 acres of land containing the ore. They have begun the operation of 12 Hereschoff furnaces, and it is understood will eventually build 100 furnaces in all for treating the ores, and give employment to about 600 men. The company has organized with William H. Nichols (president of the General Chemical Co. of New York), president; Edwin Wigglesworth of Pulaski, Va., general manager, and W. G. Eberhardt, superintendent at the mines. It is stated that the company's product will be principally sulphur, sulphuric acid and iron ore from sulphur.

### IN SOUTHEAST GEORGIA.

#### Diversified Manufacturing and Agricultural Enterprises.

[Special Cor. Manufacturers' Record.]  
Blackshear, Ga., October 24.

That Southeast Georgia is forging into the front ranks in the march of progress is evidenced by the many new enterprises to be seen all along the railroad lines penetrating this section, and also by the census and tax returns showing the increase within the last decade of Southeast Georgia in wealth and population.

Until within the last few years this section was heavily timbered with dense forests of yellow pine, but now the turpentine and saw-mill industries have ravaged the forests until comparatively few are left. Simultaneously with the removal of the timber and turpentine industries to Florida the people began to turn their attention to agriculture, and they have found that the soil which bore the giant forests of yellow pine can grow almost any other crop fully as luxuriantly.

Sea Island cotton, corn, cane, sweet potatoes, rice, peanuts, field peas, melons, garden truck, Irish potatoes, strawberries, beans, lettuce, tomatoes, celery, asparagus, cassava, velvet beans are among the crops that can be raised to great advantage in this soil and climate.

The soil is a rich sandy loam with a clay subsoil, easily cultivatable and yields rich returns for the care and fertilization bestowed.

The United States government has shown its interest in the agricultural advancement of this section by establishing

an experiment farm at Blackshear, Pierce county. This farm consists of 20 acres, and was planted in both home-grown and foreign Sea Island seed, as well as in various grasses to be used for hay, corn, cowpeas, etc. Different methods of cultivation were followed in order to determine the best method to be adopted in growing the Sea Island cotton to its highest perfection, the best seed to be planted and the prevention and treatment of disease. The cotton crop is now being gathered, and the seed from the most perfect stalks selected for next year's planting.

The farm is under the direct supervision of Mr. W. A. Orton, an able scientist in the government employ, who makes frequent visits to the farm and carefully studies the results of every experiment. He has his laboratory and his entomologist, and while the experiment farm is not yet a year old, its beneficial results are clearly apparent and much interest is manifested in its final outcome.

At Waycross, Ga., just 10 miles from Blackshear, the government has established a syrup experiment station for the purpose of demonstrating the best and most economical method of manufacturing cane syrup and preparing it for the market. This year the syrup experiment station has been enlarged, better machinery added and it is more fully equipped for business than it has been. A large acreage in cane was planted in expectation of the benefit to be derived from the syrup experiment station, and when it opens up within the next few weeks for this year's work a great deal of good is anticipated. It is easy to see the benefit to be derived from the experiment farm and syrup experiment station by the entire agricultural community of Southeast Georgia, and it is freely predicted that within the next decade there will be a still greater increase in wealth and population.

With manufacturing enterprises, gineries, fertilizer factories, planing mills, artificial-stone plants, oil mills, etc., excellent schools in both the towns and the country districts, climate unparalleled, mild in winter and tempered by ocean and Gulf breezes in summer, enabling outdoor work to be carried on the year round, hospitable people, Southeast Georgia offers every inducement to the settler.

### RAILROAD MANAGEMENT.

#### Some Effects of the Revolution in Administration Methods.

[Special Cor. Manufacturers' Record.]  
Raleigh, N. C., October 22.

Before the time of consolidations of Southern roads into great systems each road had its president, directors and superintendent, who were identified with the people along their respective roads, the president and superintendent coming in almost daily contact with patrons and employees. These officers having authority to act in all matters, and being on the ground, all matters of business were transacted without delay and avoidance of long and tedious correspondence. Claims for stock, loss and damage to freight were settled without vexatious delays, all of this work frequently being done by the superintendent and by personal interview with the claimants. There was almost no friction between the people and railroad companies. Laws favorable to the railroads were easily obtained, and any adverse to the best interests of the railroads were seldom enacted. The people and employees felt as if they owned an interest in the roads, and did all in their power for the best interests of the railroads. Cases were frequent where the company's property was protected by the people, and instances occurred where the track was watched in stormy weather by some farmer.

When the period of consolidations be-

gan and the office of general manager was created, with the office of the president and the general manager located at one end of a great system, with all the power concentrated in these officers, and they endeavoring to look after all matters connected with the system, all local authority being done away with, delays of all business occurred. Correspondence became immense. Numbers of important matters are now attended to by inexperienced clerks. Nearly all matters are attended to by correspondence and on information gained through others, and not from a personal knowledge. Unreasonable time is consumed in settling all claims. Orders are frequently given from the general office affecting matters that the officer giving the orders could not possibly from a personal knowledge understand the situation affected by such orders. In the numerous efforts at economy track men, bridge men, station men and operators are frequently cut off so as to reduce the expenses a certain number of dollars, while at the same time expensive through passenger trains are running several thousand miles a day without paying running expenses.

The owners and officers of the roads living at a distance and not coming in contact with the people has caused the feeling that the owners and officers are not in sympathy with the best interests of the country through which the road passes, while the delays to claims and the long, tedious correspondence in all matters of business, appears to be the chief causes of friction with the people and the enactment of adverse laws.

It seems that if the authority to act was invested in a local officer, as the division superintendent, with a division not too long, so that he in person could attend to all the affairs of the company on his division, and come in personal contact with the people and his men, better results could be obtained than where the acting power is so far off and has so much to do that it is impossible to act with the best results. M.

### YADKIN WATER-POWER.

#### Important Development Announcements Expected Soon.

Probably the most extensive water-power enterprise ever contemplated for the South is that which plans the development of the power of the Yadkin river, near Salisbury, N. C. The Manufacturers' Record has previously referred to the project, and is now informed that the company which plans the work will soon make important announcements regarding the beginning of construction activities. The Whitney Company of Salisbury, N. C., and Pittsburg, Pa., will own and operate the proposed plant for transmitting power by electricity to operate manufacturing and mining establishments and other enterprises. Its officers have lately been visiting the site of the development with a view of making final arrangements. It is believed that 46,000 horsepower can be obtained, and a dam 1500 feet long, 58 feet wide and 38 feet high, to cost \$600,000, will be built. The total investment contemplated will probably amount to \$3,000,000. F. L. Stephenson of Messrs. Whitney & Stephenson, Pittsburg, Pa., is secretary of the Whitney Company.

### TEXAS COTTON CROP.

#### An Official Estimate of 2,700,000 or 2,900,000 Bales.

W. J. Clay, commissioner of the Texas department of agriculture, writes from Austin to the Manufacturers' Record as follows:

"We think the Texas crop will be between 2,900,000 and 2,700,000 bales. The

crop has been picked from one week to 15 days earlier than any previous year of which we have any record. The farmers have been planting early-maturing varieties of seed, and in consequence the crop has been pushed forward nearly two weeks. At the first of the season the crop was placed on the market pretty lively, but just now there is a tendency on the part of our farmers to hold the cotton, which, if persisted in, and this now seems most likely, there will doubtless be several weeks, possibly months, before the crop is marketed. There seems no scarcity of labor. Those who picked the crop in the South and in this section have migrated to the northern part of the State and into Oklahoma. I think the crop of the South will be about 10,300,000 bales."

### WORKING FOR THE SOUTH.

#### One View of the Part Played by the Manufacturers' Record.

Editor Manufacturers' Record:

I seize a leisure moment to give utterance to the high admiration I entertain for your splendid efforts to bring to the knowledge of all the people the inexhaustible resources of the South and the unexampled opportunities which she offers to the cautious as well as to the courageous investor.

The bread which, in the interest of the South, you have been casting upon the waters all these years has begun to return. We are already in the enjoyment of the first fruits of your labor; the harvest is now at hand.

Honestly, I do not believe that, in all the files of all the years the South has been struggling up through a very maelstrom of difficulties, there can be found a publication which has shown greater devotion to her interests or greater skill and persistence in pressing her wealth of resources upon the attention of the world.

Our people, one and all, agriculturists and manufacturers, lawyers and physicians, preachers and mechanics, business men and professors, owe you a debt of gratitude.

In recognition of your unflinching zeal and well-directed efforts in their behalf the Manufacturers' Record should be accorded a hearty and substantial welcome in every home in the South. MARTIN V. CALVIN.

Georgia State Fair,

Macon, Ga., October 22, 1904.

### BANKS AND COTTON - GROWERS.

#### Their Co-operation Suggested as a Means to Regulate the Staple's Price.

Editor Manufacturers' Record:

I have for some time been reading with interest what the Manufacturers' Record has had to say along the line of the price of cotton. I have also just read with interest a brief resume of the proceedings of the Southern Cotton-Growers' Association, held at the World's Fair. As a cotton-grower I feel no little interest in the outcome of the movement which you have so generously inaugurated, and I heartily concur in the move of Mr. Morse and others in their plan for a system of warehouses, although in this sense a warehouse is not strictly necessary for storing cotton. As every planter knows, cotton, when baled, if placed in the open air on platforms, or, for that matter, on timbers laid on the ground so the air can circulate around it, between the months of September and February, will not damage, although exposed to the elements, and stored in this way is much less susceptible to fire than in a warehouse. While much benefit to the planter would come out of the warehouse system alone, yet it seems to me that this move might be greatly augmented and the cotton planter placed in a position to practically dictate the price of the cotton

crop, so that the price would be based on the one question of supply and demand, and not controlled or fixed by the gamblers of Lombard and Wall streets. We all know that it is not possible to perfect an organization of farmers as such, but with the condition which now obtains throughout the cotton-growing States, with their large number of local banks, say from one to five in every county, carrying an average annual deposit, as shown by statistics, of \$350,000,000, it is more than possible to organize the cotton planters through the banks of the cotton States. Every State has its State bankers' association, and with the local banks in each cotton State so nearly in touch with the cotton-grower in its respective locality, it is easily to be seen that a very strong nucleus exists for such an organization as will take the question of fixing the price of cotton entirely out of the hands of speculators and leave it simply as a question of barter and exchange between the producer and the manufacturer, the only two classes who should have anything to say in fixing the price, and not as it is now, the only two that have nothing to say.

This move might be started by calling a convention of delegates to be selected from each bankers' association of each of the cotton States, and to convene in some central city therein. The convention once assembled, composed, as it should and would be, of the brainiest and brightest financiers of the cotton States, there would be but little question that a plan would be evolved by which the price of cotton would be based entirely on the basis of supply and demand, and the planter and manufacturer brought closer together. In this connection I merely suggest that the following plan might be effectual (however, this might be left entirely to the cotton States' convention):

Let the convention perfect a permanent organization with its requisite officers and a strong executive board; designate its permanent abode or place of business at some city in the central or convenient part of the cotton States; let this organization keep weekly (or daily, for that matter) in touch with each local bank as to the condition of the cotton crop from the time it is planted until the crop has been gathered and ginned. Devising a plan by which the local banks shall gather this information from the planter in detail, at the same time let the association keep in touch with every cotton manufacturer, both in America and Europe, so as to know the requirements of each manufacturer as to quantity and grade of cotton he would need for the ensuing year. With this information in hand, both from the planter and manufacturer, the executive board will be able to determine almost to a nicety both the supply and the demand for the current year at the beginning of the cotton season. They would then have but little difficulty in fixing the minimum price for the different grades of cotton which should obtain during the cotton season, a price which should not diminish, but might increase as the crop may be affected by the various enemies of the growing crop and other casualties. The local banks throughout the cotton States being advised of the price so fixed, they would be in a position to advance to the cotton-grower upon his warehouse, or, for that matter, his platform or gin receipts, this value, less the estimated cost of storage, insurance, interest and a small assessment to defray the maintenance of the organization. The latter expense, however, might be borne by the banks for the increased benefits to accrue to them. The bank would have in this receipt the finest collateral that could be offered, as it is a well-known fact that cotton is less perishable than any other agricultural product. The fixing of the

price of cotton being taken out of the hands of the speculators and placed in the hands of the executive board, the manufacturer must of necessity be brought in contact with this board for the purchase of his cotton, as the board would be in possession at all times of information of the quantity and grade of all cotton located at each point. The information would be easily accessible to the manufacturer as to all points from which to secure such cotton as he might desire. If any local bank should not have sufficient capital to handle the cotton of its section, the cotton receipts held by it could be easily hypothecated to any large bank either in the East or West as the safest collateral that could be offered, so that there could be no question of ample capital to handle the cotton crop, even though the crop of the entire year should be held in bond. But this condition would never occur. I apprehend that the cotton crop would move as rapidly from the planter to the factory as it now does, and at no time would there be in the hands of the banks one-fifth of the cotton crop. The price of cotton would not only be materially increased, but this plan would be of vastly more advantage and profit to the banks than the conditions which now obtain, as they would have in their hands the safest and surest collateral that could be presented. And if this be practicable, why should it not be done? Some such plan as this should certainly appeal to the pride and patriotism, not alone of every Southerner, but of every American, for the simple reason that three-fourths of the entire cotton crop of America must be marketed and manufactured in foreign countries. It is so nearly an American product and its market so nearly a foreign one no American should object to a high price, although he be the rankest protectionist, as his theory is necessarily a high price for American products. With a higher price for cotton the South is not the only beneficiary. The entire country would be correspondingly benefited. With even a price of only one cent a pound more under this system than under the system now in vogue by the cotton gamblers, there would be created, by way of a balance in trade in favor of the United States government, over \$50,000,000 annually. Let the manufacturers fix a price for cotton goods commensurate with the price they have to pay for their cotton, and with the foreign manufacturer paying a higher price for his raw material the American manufacturer of cotton will need no protection from the government. No consumer of manufactured cotton goods in the South, when he knows that the chief product of his section is bringing its real value in the markets, will make any objection to the price that he may have to pay for manufactured cotton goods, and it is certainly unreasonable for the North, East or West to file an objection when is taken into consideration the very small percentage of the cotton crop used by them. In other words, as the cotton crop must be a crop practically marketed in the foreign countries, let the foreigner pay for it, and this is all the protection that the cotton-grower or the American cotton manufacturer need ask, and this, too, can be accomplished without the aid of national legislation. When this or some similar plan is inaugurated, then, indeed, will cotton be king, and the Southern States the queen of the world.

JOHN C. YANCEY.

Batesville, Ark.

### Wants Oil Burners.

The Frictionless Metal Co. of Richmond, Va., writes the Manufacturers' Record that it wants to correspond with manufacturers of oil burners with a view of contracting for equipment to change its power-plant fuel from coal to oil.



## INDIVIDUAL EXHIBITS AT ST. LOUIS.

[Special Correspondence Manufacturers' Record.]

St. Louis, Mo., October 24.

The exhibit in the Manufacturers' Building at the Louisiana Purchase Exposition of the Mississippi Glass Co. and its associates, the Mississippi Wireglass Co. and the Appert Glass Co., has for its principal feature a crystal pavilion of remarkable beauty, in which many of the utilizations of the company's products are illustrated practically.

The crystal pavilion, which is one of the show features of the exposition, is a steel, wood and glass structure of the Gothic order, about 40 feet square and 35 feet high, and was designed by Francis H. Kimball, the eminent New York architect. It is located on block 2A in the Manufacturers' Building, and is artistically lighted within by 500 incandescent lamps.

The structural elements of the building are of skeleton steel framework veneered with wood and occupying the least space consistent with requisite strength, the remainder of the shell of the building consisting of various types of sheet glass

work immediately above is of the Florentine pattern, beveled and ornamented with a series of striking designs, the latter being the product of E. F. Kerwin Manufacturing Co. of St. Louis.

At one of the three entrances to the pavilion is a Van Kannel revolving door, in which the four wings are, respectively, of oak, copper, bronze and zinc, while the glazing is of polished wireglass in both flat and curved surfaces.

Among the concerns whose windows are on exhibition in practical working form are David Lupton & Sons Company, Philadelphia; Voightmann & Co., Chicago and New York; J. C. McFarland & Co., Chicago; Zahner Manufacturing Co., Kansas City; Jas. A. Miller & Bro., Chicago; Meade Roofing & Cornice Co., Philadelphia; Geo. Hayes Company, New York; J. S. Thorn Company, Philadelphia, and St. Paul Roofing, Cornice & Ornamental Co., St. Paul.

A cleverly designed ventilating sash, operated by the Hitchings safe operating

with wireglass which was one a number saving a portion of the company's building from destruction during a recent fire.

Immediately at the rear of the pavilion is shown a frame work, 17x10 feet, and glazed with wireglass. This is by Mesker & Bro., and is an example of 34,000 square feet of wireglass in metal frames which this firm will install in the new plant of the Union Electric Light & Power Co.'s plant at St. Louis.

Among the exhibits showing the resistance to impact possessed by wireglass skylights is a section of a skylight of the Forman Building, Erie, Pa., which was struck by a piece of 4x4-inch timber 10 feet long falling a distance of four stories. Although the glass is badly cracked, as a matter of course, the timber did not penetrate nor did it loosen pieces of glass large enough to cause any damage in dropping.

Within the pavilion are a number of interesting devices—the "Lovell" window-operating device, by the G. Drouve Co. of Bridgeport, Conn.; special types of window and skylights by Geo. Hayes Company of New York, etc. A plate of one-quarter-inch polished wireglass, 40x130 inches, the largest produced, is shown here.

A novel application of polished wireglass is embodied in several showcases for the use of jewelers and others showing goods of considerable value, the wire mesh eliminating the hazard of burglary.

On the inside of the building, in the rear, is arranged a fire box, in which is shown some sheets of the ribbed pattern of wireglass, which have been subjected to a test of 2200 degrees of heat, and then a stream of water 110 pounds pressure applied inside and outside. The crystallized condition of the glass after coming in contact with the water when in its heated condition is clearly illustrated. There are many holes in the glass, which were picked by visiting experts to expose the condition of the wire mesh after the severe stress.

Among the products of the Appert Glass Co. shown are a number of excellent examples of large holding vessels—battery jars for electric accumulator work, water coolers, washing and fixing baths for photographers' use, jars and tanks for household use, covers for hermetically sealing large openings, vessels of various kinds for pharmaceutical and scientific uses, etc.

The pavilion is provided with every facility of the modern office, desk room, stenographers, telephones, messengers, etc., which are at the service of visitors.

### Regulating Speed.

An interesting new device to be seen in the Machinery Hall is the "White" speed regulator, made by the Power & Speed Regulator Manufacturing Co., Ltd., of Kalamazoo, Mich., by which a new design of the variable speed countershaft has been produced which gives 2½ times the lowest speed as the highest maximum, and also gives any intermediate speed desired. It can be connected direct to the ordinary low-priced motor, thus avoiding the expense of variable speed motors, which at best do not give more variation than a step cone. It is especially adapted to use on lathes, shapers, planers, paper mills and any other machinery where variable speed is desired.

### Slide-Valve Engines.

The Houston, Stanwood & Gamble Company of Cincinnati, Ohio, has in section 43, Machinery Hall, the only exhibit of slide-valve engines to be seen at the exposition. The exhibit consists of four engines not in operation, but there are in addition to these two of its engines in operation on the grounds. The still exhibit consists of one 20-horse-power, one 50-horse-power, one 80-horse-power and one 300-horse-power, all set on founda-

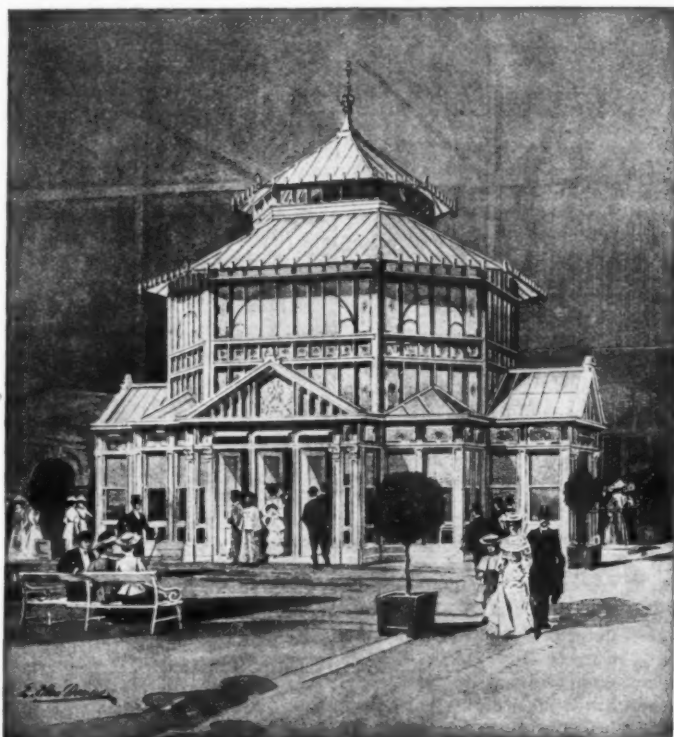
tions and presenting a very attractive appearance. One of the engines in operation is of 50 horse-power, which is running the Sunny Brook Distillery, one of the novelties of the exposition, as it is the only bonded distillery ever permitted to be on exhibition. A 20-horse-power engine which this company makes is also in use by the Sun Heat & Power Co., which purchased it, and both engines are giving a creditable account of themselves.

### Power Pumps.

One of the most distinctive and attractive displays in the Palace of Machinery is that of the Goulds Manufacturing Co., Seneca Falls, N. Y. The handsome booth in white and gold, with a rich drapery of red, makes a very pleasing background to the large electric fountain that is the first to catch one's eye on approaching the exhibit. This fountain is operated by one of the Goulds electric pumps. The water display automatically changes every minute, and there are five distinct displays. The large line of power pumps seems to be very complete, covering every service from pumps of small capacity to the largest municipal water-works pumps. There are deep-well working heads, centrifugal pumps, air and vacuum pumps, fire pumps, pressure and boiler-feed pumps. An important feature of the exhibit is the electrically-driven power pumps that are constantly increasing in popularity, especially so for fire service and for domestic, well and tank pumping. These pumps are arranged to work automatically as the varied demands on the service may require. They are practically noiseless and require but little attention; they are cleanly and always ready for immediate service. In the large boiler-house adjoining the Palace of Machinery one of the Goulds electric triplex power pumps is in operation supplying water to boilers of 4000-horse-power capacity. The Goulds also have a very fine exhibit in Horticultural Hall, showing a large line of hand pumps for all purposes, including all kinds of spray pumps and spraying outfits.

### In a Brilliant Setting.

One of the striking exhibits in the Palace of Electricity is the handsomely-arranged pagoda of the Holophane Glass Co. of New York, forming what might almost be called a classical Grecian building architecturally, which is attractively illuminated inside and out by the various forms of the Holophane Glass Co.'s illuminating appliances. These are arranged in the form of globes and reflectors, and are adapted to any kind of artificial light. The Holophane system is declared to be the first scientific attempt to utilize artificial light so as to increase efficient illumination, while at the same time eliminate all the injurious effects which are so frequently present in all forms of the artificial lighting of today. The Holophane globes and reflectors consist of a system of prisms, interior and exterior, scientifically constructed, by means of which the rays of light are broken up and scattered or diffused, so that while increasing the illuminating efficiency, the rays are softened and rendered harmless and agreeable to the eyes. The manufacture of Holophane globes is based on the scientific application of optical laws, and their use makes it possible to secure much better illumination from a light than is obtainable by any other glass globe, and to distribute that illumination where most needed. The interior of the company's exhibit gives a practical demonstration of the illuminating efficiency of the Holophane glass globes in comparison with globes of the ordinary construction. In this room, which is fitted up to represent a dining-room, are two tables on opposite sides. One of the sides of the room is lighted by Holophane glass



A CRYSTAL PAVILION—EXHIBIT OF MISSISSIPPI WIREGLASS CO.

mounted in a number of mechanical devices illustrating various practical applications. All parts of the building save the glass surfaces are painted in ivory white within and without, and the result is an exhibit of extraordinary beauty. It is announced that this building will be taken down after the fair and permanently preserved, so although designed primarily as an exhibit at the exposition, the life of the crystal pavilion will not terminate on November 30. Its several structural members are put together with either bolts or screws, admitting of its being taken down and re-erected at comparatively small expense.

A number of concerns manufacturing windows, skylights, doors and other devices in the construction of which sheet glass finds employment have collaborated with the Mississippi Glass Co., installing their various finished products as a part in many cases of the construction of the pavilion itself, thus adding in large measure to the practical value of the exhibit.

The first level of windows has polished wireglass in the lower sashes and "Maze" wireglass in the upper sashes, while the transoms and a portion of the ornamental

apparatus, is shown by Hitchings & Co. of New York city.

The entire roof of the central portion of the pavilion is equipped with the Paradigm skylight, glazed with wireglass, as manufactured by Arthur E. Rendle of New York city. Plenty's improved skylight covers one of the bays.

Among the most interesting features of the exhibit are frames containing wireglass which have been through fire and water tests. These are shown within the pavilion as well as in an annex at one side. Among these may be mentioned the large metal window-frame by Rasner & Dinger Company of Pittsburg, taken from the front of the United Electric Light & Power Co.'s transformer station in Baltimore after the great February fire. This was one of a series of windows covering practically the whole front of the building. The wireglass maintained its integrity throughout the tremendous heat of the conflagration, and was broken only after the fire was practically extinguished by the falling of a heavy brick wall across the street.

The Lee Hardware Co. of Saline, Kan., has contributed a window-frame glazed

gloves, which give a remarkable soft and well-diffused light, while the side in which the ordinary glass globes are used, although both sides have the same number of lights and use the same amount of electricity, is filled with glaring contrasts of shadow and strong light. This exhibit is one of the show places of the Electricity Building, and always contains a throng of interested visitors.

#### A Big Locomotive.

In the locomotive section of the Transportation Building, World's Fair, the Rogers Locomotive Works of Paterson, N. J., has five of its engines, four of which are to be found in the company exhibit proper, while the fifth is included in the comprehensive and historical exhibit of the Baltimore & Ohio Railroad Co. nearby. Two of the Rogers locomotives exhibited were made for service on the Illinois Central Railroad. One is of the consolidation type of heavy freight engine, with four pair of drive wheels 56½ inches in diameter. The total weight of the engine is 189,000 pounds. The other is an Atlantic type passenger engine, with 79-inch drivers, and has a total weight of 188,000 pounds. The third is a 10-wheel passenger engine built for the Great Northern Railroad. The drive wheels are 73 inches in diameter. The total weight of the engine is 162,000 pounds. Made for the Cotton Belt Railroad, there is exhibited a mogul type of passenger engine, with three pair of driving wheels 61 inches in diameter, the engine having a total weight of 145,000 pounds. The Baltimore & Ohio engine is of the consolidation type, has four pair of driving wheels 56 inches in diameter, and is the heavy engine of the Rogers collection, its total weight being 193,500 pounds. In honor of the occasion, it is named "Governor Francis."

#### Steam Brass Goods.

The William Powell Company of Cincinnati, Ohio, has a very complete and attractively-arranged exhibit in section 27, Machinery Hall. The display consists of a full line of the Powell steam brass goods, especially of their regrounding White Star reversible renewable disc valves, which is claimed by them to be the best device for controlling steam ever patented. In addition, there is shown a full line of everything made by the company, including lever throttle valves, "Trojan" sight-feed lubricators, signal sight-feed oilers and a variety of styles of grease cups, whistles, etc. In this exhibit may be found all modern mechanical brass and iron fittings for the boiler, engine-room and gas-engine practice of the best grade of manufacture. This is one of the old houses of the country, being now in its fifty-seventh year of the successful manufacture of the best grades of steam-engineering work. Its patented specialties are an important feature of its output, and all are well displayed at its exhibit at the World's Fair. Its handsome booth is illuminated by a five-point star, the company's trade-mark, and the name William Powell Company in blue lights forms a very pretty, soft, blue contrast to the white and gold columns and arches.

#### For Heavy Work.

The Erie Foundry Co. of Erie, Pa., manufacturer of angle, rotary, circular, Jeter and hydraulic shearing machinery, and also of hammers for steel working and tilting, piling, general forging, welding, drop work and special-shape forging, has an exhibit in Machinery Hall of one of its 600-pound standard single-frame hammers and one 126-inch by ¼-inch motor-driven Guillotine Shear. These machines are fairly representative of the high type of workmanship and design which characterizes the products of this company, and are proving of much interest to the users of such tools.

## TEXTILES

[A complete record of new textile enterprises in the South will be found in the Construction Department.]

Correspondence relating to textile matters, especially to the cotton-mill interests of the South, and items of news about new mills or enlargements, special contracts for goods, market conditions, etc., are invited by the Manufacturers' Record. We shall be glad to have such matter at all times, and also to have any general discussion relating to cotton matters.

#### Mills and Power at Eatonton, Ga.

The Putnam Mills & Power Co., reported incorporated in the Manufacturers' Record of October 6, acquires and will continue the operation of the electric-power plant previously known as the Eatonton Electric Co. and the cotton factory formerly known as the Eatonton Electric Cotton Mills at Eatonton, Ga. Last April it was announced that Messrs. Floyd & Co. of Savannah had purchased the Eatonton plants mentioned and planned extensive improvements, and they have organized the new corporation. All the improvements have been completed, including the erection of an additional building 100x146 feet and the addition of 1200 spindles, 112 looms and other machinery to modernize the mill. There are now about 4700 spindles and 350 looms in position for manufacturing ducks, osenburghs and sheeting. Electricity will drive the mill machinery. The new company has the following officers: Manager, O. B. Nisbet; superintendent, R. F. Matthews, and electrician, E. W. Marshall. Its capital stock is \$75,000, with privilege of increasing to \$500,000.

#### The Etowah Mills.

Building materials are now being placed on the ground for the erection of the buildings of the Etowah Mills, Greensboro, N. C. Contract for construction was obtained by the J. F. Gallivan Building & Construction Co. of Greenville, S. C., and Palmer, Mass. The lumber (about 1,197,000 feet) will be furnished by the Thomson Lumber Co. of Greensboro. Full details regarding this big mill were presented in this column last August. Briefly, the plant will be of the most modern construction and equipment, with 7500 mule spindles and 500 looms to begin with, and later to be increased to 15,000 spindles, etc. The company is capitalized at \$1,000,000.

#### Secretary and Assistant Treasurer Wanted for Southern Cotton Mill.

Competent business men who can consider an opportunity for becoming interested in a large cotton-manufacturing corporation in the South will find it to their advantage to investigate an opening which is now made public. The company in question desires to secure the services of a man to act as secretary and assistant treasurer and invest or control \$20,000 for the purchase of stock. The best of references will be asked of the applicant. Correspondence addressed to "H." care of the Manufacturers' Record, will be forwarded promptly.

#### Textile Notes.

Hard-yarn spinners representing more than 500,000 spindles were in session at Charlotte, N. C., this week in the interest of their trade.

The Yazoo Cotton Mills of Yazoo City, Miss., has decided to issue preferred stock to the amount of \$100,000. There are 5000 ring spindles in the plant.

A. L. Bain of Greensboro, N. C., proposes the organization of a company to build a plant of 10,000 or 15,000 spindles, but no final arrangements have been completed.

The Chamber of Commerce, El Paso, Texas, will hold a meeting to confer with M. De Mense of Belgium relative to the establishment of a plant for the manufacture of artificial silk.

Messrs. Edward A. Johnson of Raleigh, N. C.; John L. White and G. V. Kelly of Jersey City, N. J., have incorporated the Lincoln Cotton Mill Co., with capital stock of \$125,000, for the purpose of manufacturing cotton goods.

The Royal Bag & Yarn Manufacturing Co. of Charleston, S. C., is engaged upon a contract to make 300,000 sacks for Peruvian guano for an importing firm of that city. The company is now employing about 100 Charlestonians in its bag department.

The Salem (N. C.) Cotton Mills, mentioned last week, has completed the main mill, one story, 75x236 feet; the engine-room, 40x40 feet, and the boiler-room, 40x40 feet. The engine, boilers, pumps, etc., have arrived, and the balance of the machinery, 5280 spindles and complement, will be shipped by November 1.

T. B. Pnschal, cashier of the People's Bank, is interested with James L. Graham of Searcy, Ark., in the organization of the proposed cotton-mill company mentioned last week. They have received letters from a Northern company which is prepared to remove 15,000 spindles and 300 looms to the South under certain conditions.

The Tennille (Ga.) Cotton Mills' improvements, referred to last week, included the addition of about \$7000 worth of carding machinery, and spindles will probably be added later. The company's output of mule-spun hosiery yarns on cones will amount to about 12,000 pounds per week. Four thousand mule spindles are being operated.

The Columbus (Miss.) Yarn & Cordage Co. has completed its mill, reported in August as to be built. Contracts for the yarn and cordage to be produced have already been obtained in quantities warranting the operation of the plant both night and day. There are 1600 spindles in position. The company is capitalized at \$100,000. J. W. Steen is president.

The Lexington (S. C.) Manufacturing Co. has awarded contracts for considerable new machinery and additional machinery, including 3000 spindles and accompanying preparatory apparatus. The company has been operating a plant of 3800 ring spindles and 204 looms on the production of bed tickings. Probably about \$45,000 is the expenditure for the new equipment.

#### QUOTATIONS OF COTTON YARNS.

By Paulson, Linkroom & Co., New York, Philadelphia and Chicago.  
October 25.

No. 10s-1 and 12s-1 warps.....	16½ @—
No. 14s-1 warps.....	17 @—
No. 16s-1 warps.....	17½ @—
No. 20s-1 warps.....	18 @18½
No. 22s-1 warps.....	19 @—
No. 26s-1 warps.....	19 @19½
No. 6s to 10s yarn.....	16 @16½
No. 12s-1.....	16½ @—
No. 14s-1.....	17 @—
No. 16s-1.....	17½ @—
No. 20s-1.....	18 @18½
No. 22s-1.....	19 @—
No. 26s-1.....	19 @19½
No. 8s-2 ply soft yarn.....	17 @—
No. 10s-2 ply soft yarn.....	17 @17½
No. 8s-2 ply hard.....	16½ @—
No. 10s-2 ply hard.....	17 @—
No. 12s-2 ply hard.....	17 @17½
No. 14s-2 ply.....	17 @17½
No. 16s-2 ply.....	17½ @18
No. 20s-2 ply.....	19 @—
No. 24s-2 ply.....	20½ @—
No. 26s-2 ply.....	20½ @—
No. 30s-2 ply yarn.....	22 @—
No. 40s-2 ply.....	25 @—
No. 8s-3, 4 and 5 ply.....	16½ @—
No. 20s-2 ply chain warps.....	19 @—
No. 24s-2 ply chain warps.....	20½ @21
No. 26s-2 ply chain warps.....	21 @—
No. 30s-2 ply chain warps.....	22 @—
No. 16s-3 ply hard twist.....	17½ @—
No. 20s-3 ply hard twist.....	19 @—
No. 26s-3 ply hard twist.....	20½ @—

State Mine Inspector J. M. Gray of Alabama estimates that in spite of the strike of union miners the output of coal

in the State this year will be more than 12,000,000 tons.

#### The South's Strong Position.

Among the specially interesting features of the thirty-first edition of "Cotton Movement and Fluctuation," published by Latham, Alexander & Co. of New York, is an examination by Col. Alfred B. Shepperson of the allegations that the Southern States have deteriorated in their capacity for cotton production. Colonel Shepperson discusses at some length the various statements and makes the point that "it is the favorable or the unfavorable weather conditions during the seasons of growth, development and maturity which make or mar the cotton crop, and this fact, which is so clear to those who study nature's ways, should be universally recognized." Another feature of the publication is the review of the situation by Ellison & Co. of Liverpool, a description of a cotton-picker combining mechanical devices with human direction, beside the usual table of receipts, consumption, stock exports and fluctuations. In their own annual letter Latham, Alexander & Co. say:

"The South is certainly much better able than ever before since the Civil War to handle her cotton crop without financial stress, but this ability should not in our judgment lead her into the venturesome realm of speculation that would induce the policy of holding back her cotton from the market in the hope of seeing last year's furore in cotton speculation repeat itself. On the contrary, we think her wisest course will be to market the crop freely, accepting such prices as the world's demand for it may establish.

"The South does not grow cotton except to sell it for the best price obtainable from the manufacturer, and he will pay whatever the world's demand for his manufactured goods will allow. This is the last analysis of what should be the relation between planter and spinner, and so in so far as that relation is disturbed by speculative manipulation of market values, trade conditions are hampered, and the twin industries, that count for so much in the commercial welfare of the world, are thrown out of balance and rendered unprofitable.

"If the current crop proves to be as large as it now promises, and can be marketed from first hands at an average price above 10 cents, the South at the end of the year will owe less money per capita than any other geographical division of the country, which will be good reason for sectional pride."

#### Fire Extinguishers Wanted.

Messrs. Van Der Linde & Teves of Semarang, Soerabaja, Amsterdam, Holland, want prices on chemical fire extinguishers, packed in a seaworthy manner, for shipment to Java, and delivered f. o. b. New York for cash. They want the extinguishers, which consist of an iron tube filled with chemicals, provided with a hook to hang on the wall ready for immediate use when occasion requires.

#### Would Buy Raw Cotton.

Axel G. Wahlén of Lilla Torget 6, Gothenburg, Sweden, wishes to represent respectable shippers of raw cotton, principally uplands, for sales to spinners in Sweden.

Mr. H. H. Shelfer of the national Agricultural Department, who is interested in extending the culture of fine tobacco in Texas, is arranging for a large meeting of growers at Houston on November 23.

More than a dozen brick business buildings, two factories and a number of smaller houses are under construction at West Point, Miss.



## RAILROADS

[A complete record of all new railroad building in the South will be found in the Construction Department.]

### Western Maryland's Progress.

It is reported that the Western Maryland Railroad Co. has purchased Brown's wharves on Fell's Point, in the harbor of Baltimore, and will use the property as a freight station. The property includes two large warehouses and wharves on Thames street and several hundred feet of water-front. The purchase of this terminal will enable the company to receive freight on the north as well as on the south side of the harbor, and it will be conveyed by barges to the terminals at Port Covington.

At the annual meeting of the Western Maryland Gen. John M. Hood retired as a member of the board. He was formerly president of the company, and remained at its head until it was purchased in the interest of the Wabash Railroad two years ago. Since then he has been president of the United Railways & Electric Co. at Baltimore city, which position he continues to hold.

The annual report of the Western Maryland for the fiscal year ended June 30 last shows gross earnings, \$3,612,091; operating expenses and taxes, \$2,301,894; net earnings, \$1,310,197; net income from the railways, \$1,434,577, which shows an increase of over \$55,000 as compared with last year. The net profits of the coal and allied departments was \$520,806, showing a decrease of about \$385,000, making the total net income of the company \$1,955,283, and, after the payment of fixed charges, leaving a surplus of \$416,292. The considerable shrinkage in the coal profits was due to the lower prices obtained for the fuel, and operating expenses were heavier owing to the increased cost of wages and supplies.

Reports were received of progress on the extension and improvement of plans. The completion and opening of the tidewater extension was noted, and also satisfactory progress on the extension from Cherry Run to Cumberland, besides the laying of heavier steel on the present main line.

### GALVESTON TO DULUTH.

#### Financial Arrangements Reported to Build the Interstate Railway.

E. D. Steger of Bonham, Texas, president of the Denison, Bonham & New Orleans Railroad, is reported as saying that financial arrangements have been made in this country and in Paris, France, to finance the proposed Interstate Railway to be built from Galveston, Texas, to Duluth, Minn., via Kansas City. The line is to be completed within five years, and will, it is reported, have a total of about 3000 miles of track. He is also quoted as saying a contract has been signed with capitalists in Paris that insures its construction. The Interstate Railway Co. and the American Southwestern Trust Co. have been organized with Mr. Steger as president, and with offices in Kansas City, Mo., and in Paris, France. Actual work will probably soon begin.

A dispatch from Bonham reports a meeting of the stockholders of the Denison, Bonham & New Orleans Railroad and the announcement by President Steger that the Interstate Railway would probably desire to purchase the line, which is about 30 miles long from Denison to Bonham, Texas, and he desired an option on the stock until January 1 next. This option, it is said, will be granted.

Some time ago it was reported that construction of this line had begun in Missouri.

### General Passenger Agents.

The American Association of General Passenger and Ticket Agents held its forty-ninth annual convention at Old Point Comfort, Va. There were 96 members present at the opening session, and among the subjects discussed were safety paper for the manufacture of railway and steamship tickets and the abolishment of Sunday excursions. A resolution was adopted providing that all lines be required to put the safety paper in use by May 1 next. The question of Sunday excursions was referred to the various territorial passenger associations.

The convention was distinguished by a banquet which was attended by Governor A. J. Montague of Virginia and Gen. Fitzhugh Lee as guests of members of the association. Mr. S. H. Hardwick, passenger traffic manager of the Southern Railway, delivered the annual address, his subject being the "Evolution and Compositiveness of the General Passenger Agent."

Officers for the ensuing year were elected as follows: President, F. E. Boothby, general passenger agent Maine Central Railroad; first vice-president, A. J. Smith, general passenger agent Lake Shore & Michigan Southern Railway; secretary, C. M. Burt, general passenger agent Central Railroad of New Jersey.

Next year's convention is to be held at the City of Mexico.

### STATESBORO TO ATHENS.

#### Projected Railroad Which Might Prove Useful to the Seaboard.

The Savannah, Statesboro & Northern Railway Co. has given notice that it will apply for a charter in Georgia to build a line about 160 miles long from Statesboro, Ga., to Louisville, Thomas and Washington, and thence to Athens, all in the same State. The road will run generally in a northwestern direction and will traverse the following counties: Bulloch, Emanuel, Burke, Jefferson, Glascock, Warren, Wilkes, Oglethorpe and Clark.

The capital will be \$2,600,000, and the incorporators named in the petition are W. H. Lynn of New York city, Cecil Gabbett, J. A. Brannen, J. G. Blitch, J. W. Olliff, R. Simmons, W. B. Martin, W. C. Parker, S. C. Groover, S. L. Moore, J. F. Brannen, W. T. Smith, J. H. Donaldson and B. T. Outland of Statesboro and J. S. Franklin of Portal, Ga.

Mr. Gabbett is president of the Savannah & Statesboro Railway, which has a line 35 miles long extending from Cuyler on the Seaboard Air Line northwest to Statesboro. The construction of such a road as is proposed might in time give the Seaboard Air Line the long-talked-of direct connections from Atlanta via Athens to Savannah.

### NATCHEZ TO THE GULF.

#### Two Companies Which May Build Lines in Mississippi.

The Natchez & Gulf Railroad Co., which was chartered two years ago to build a line from Natchez, Miss., to Gulfport in the same State, has again been granted a charter, the original one having been permitted to lapse. The incorporators are A. G. Campbell, J. N. Carpenter, J. W. Lambert and others. The road will be about 160 miles long. The Natchez & Gulf, if constructed, would run via Meadville, Magnolia and Poplarville, and for a short distance it would traverse part of Louisiana.

In connection with this it is reported that the Mississippi Central Railroad, formerly the Pearl & Leaf River line, which proposes to build from Hattiesburg to Scranton on the Gulf, may extend its line west from Silver Creek to Natchez, about 85 miles. At present only one railroad enters Natchez, the Yazoo & Mississippi

Valley, but it appears probable that one or the other of the proposed roads will be constructed to give the city a railroad outlet southeast to the Gulf.

### Improvement to C. & O. Roadbed.

In a personal letter a well-informed engineer writing from Virginia refers to the improvement of the roadbed on the Chesapeake & Ohio Railroad, and on this point says:

"I have had occasion in the last week to walk over a number of miles of the Mountain Division of the Chesapeake & Ohio road, and have rarely seen a more perfect track. The foundation is of two and sometimes of three feet of broken stone, the rail is of the heaviest section known, and there is a perfect alignment. The ends of the rails are absolutely square and in the same plane, making perfectly smooth joints, and the ties are of the best imaginable quality. Altogether, in every respect it seems to measure up to the highest standards set by modern American practice. One can account for the wonderfully easy riding on the Chesapeake & Ohio trains, which is in marked contrast with that of some other lines."

### Waynesboro & Savannah Valley.

The Waynesboro & Savannah Valley Railroad Co., according to a report from Waynesboro, Ga., is being organized, and application will be made for a charter to build a line from Waynesboro via Sylvania and Clio to a point on the Savannah river, connecting there with the Augusta and Savannah steamers. Connection will be made with the Seaboard Air Line Railway at Clio. The new road will be about 60 miles long and will touch Mill Haven, Resources and Bevell. Among those interested are Wm. A. Wilkins, Sr., R. C. Neely, Wm. A. Wilkins, Jr., Frank M. Cates, P. L. Corker, Eton E. Chance, F. L. Scales, W. H. Davis, F. L. Brinson, Edwin Fulcher, C. W. Skinner and Geo. O. Warnock of Waynesboro, Burke county; L. H. Hilton and others of Sylvania, Screven county, Georgia.

### Augusta to Midville.

The Augusta & Florida Railway Co. has applied for a charter in Georgia to build a line from Augusta, Ga., to Midville, Ga., about 60 miles. Midville is on the Central of Georgia Railway in the southern part of Burke county. The list of incorporators is headed by W. M. Blount of Union Springs, Ala., who is president of the Union Springs & Northern Railway in that State. The other incorporators are F. J. Holcombe, A. W. Jones, J. Weale, J. T. Davis and William Stevens of Midville, Ga.; J. I. Davis of Hephzibah, Ga.; D. Crossland of Aiken, S. C.; G. R. Coffin and C. C. Howard of Augusta, Ga.

### Savannah, Shiloh Park & Corinth.

The Savannah, Shiloh Park & Corinth Railway Co. of Hardin county, Tennessee, has been chartered at Savannah in that county to build a line about 65 miles long from Allen's Creek, the terminus of a branch of the Nashville, Chattanooga & St. Louis Railway, via Savannah and Shiloh Park to Corinth, Miss., on the Mobile & Ohio Railroad and the Southern Railway. The incorporators are E. P. Churchwell, Edgar Cherry, E. D. Patterson, J. J. Williams, H. E. Williams, D. A. Welch, F. H. Winship, Jeff Ross, Arch Walker, A. J. Williams, J. W. Ross, J. K. Barlow, T. J. Welch and E. D. Ross.

### Work on Several Contracts.

Messrs. E. L. Propst & Co., railroad contractors, write from Charlotte, N. C., to the Manufacturers' Record as follows: "We have contract with Southern Rail-

way Co. for grading for new tracks and additional yard at Spencer, N. C. We also have contract with Southern at Cornelia, Ga., for grading long passing tracks and putting in three stone culverts. We have about completed two miles of grading on Thomasville & Denton Railroad for Milton Jones."

### Norfolk & Western Work.

The \$5,000,000 of bonds sold by the Norfolk & Western Railway, as announced at the annual meeting, covers the improvement work already noted, including the completion of the low-grade line between Kenova and Naugatuck, the completion of second track upon sections of the line between Lurich and Naugatuck, new yards and enlargement of existing yards, new passenger station at Roanoke and the replacement of light bridges with heavier structures.

### Electric Railway Proposed.

The Keyser, Burlington & Petersburg Electric Railway Co. of Keyser, W. Va., has been chartered to build a line about 35 miles long to connect Keyser and Burlington in Mineral county, W. Va., with Petersburg in Grant county. The incorporators are Archibald C. Williams, Abraham P. Gross, T. R. Palmer, John S. Siebert, B. W. Wright, Urus G. Carl, Cumberland, Md.

### Santa Fe's California Limited.

The Santa Fe system announces that the daily service of the California Limited will be resumed on November 30. While the time-card has not yet been arranged, the train will leave Chicago about 7.30 P. M. daily. The company's new hotel at the Grand Canyon in Arizona is to be opened early in December. George T. Nicholson is passenger traffic manager at Chicago.

### B. & O. Building Contracts.

A contract has been awarded by the Baltimore & Ohio Railroad to Patrick Farrell of Cincinnati, Ohio, to build a 10-stall roundhouse at Grafton, W. Va.; cost \$40,000. The company has also awarded to Holbert & Spedden of Fairmont, W. Va., contract for an extension of the freight shed and platform at Morgantown, W. Va. This will cost \$8000 to \$10,000.

### Another Big Car Order.

The Atlantic Coast Line Railroad Co. has awarded a contract to the South Baltimore Steel Car & Foundry Co. for 500 box cars of the same type as the lot of 500 ordered several weeks ago from the same manufacturers. This will make a total of about 1000 new cars for the company, approximating in value \$1,000,000.

### For Rubber Goods.

Mr. E. B. Baxter of 103 Montgomery Building, Augusta, Ga., writes to the Manufacturers' Record as follows:

"I am very anxious to establish the manufacture of rubber goods in the South. The possibilities are almost limitless. Can you not direct me to something which will enlighten me so far about the matter than I can present the chances for making money in the business to investors with the backing of authentic information?"

Representatives of the commercial bodies and city councils of Montgomery, Mobile, Selma and Wetumpka, of various steamboat lines and of the principal landings on the Alabama river will attend a convention at Montgomery November 11, under the auspices of the Commercial and Industrial Association of that city, to organize a united effort for the opening up of all-the-year-round navigation of the Alabama river to Mobile.

## LUMBER

[A complete record of new mills and building operations in the South will be found in the Construction Department.]

### Paper Pulp and Tannic Acid.

*Editor Manufacturers' Record:*

The last few months have been spent by the officers of the Forestry Chemical Co. in investigating the resources of Florida as regards its ability to furnish the raw materials for the making of first-class tannic acid and paper pulp. We found that Florida has now accessible a vast amount of what is known as saw palmetto, suitable for making both tannic acid and paper pulp. In the southern part of the State are found groves of the mangrove tree, which help to make the palmetto tannic acid A No. 1.

While in Florida we also looked into the subject of making refined turpentine from the stumps and lightwood of the Southern pine found there. Here is a new and very important field to be opened up. A few plants have already started out in this line, but the field as yet has hardly been touched. From all we have seen in our investigation we are in a position to say that we shall recommend to the stockholders of our company that they begin at once to take steps to establish plants in this section so as to be able to take advantage of the vast amount of raw material found there.

From Florida we have come into the State of South Carolina. We find that in the northern corner of the State are fine amounts of hardwoods suitable for our use. From these timbers we can also obtain material for other products. Therefore, we think it advisable that we also establish a plant in this section. This will afford a market for a large amount of oak, chestnut and chestnut oak, from which, by our process, we shall make tannic acid and paper pulp. Incidentally, as these investigations have been going on, we could not help but see the conditions of the South today in other directions. Especially was our attention drawn to the situation of the cotton farmers of this section. We find them harvesting one of the best crops of cotton they have had for years, and seeing that the prices are quite favorable to them, they seem to be in a prosperous condition. They now feel as if they were engaged in a solid business and that money properly invested in their business could not help but bring good returns. Therefore, they are willing and anxious to enlarge their opportunities and are seeking capital with which to do this.

Here I believe the Eastern capitalist can now find a safe investment for the money he wishes to invest. Loans made upon these first-class cotton lands in this section of the South cannot but be gilt-edge. This movement would help both the lender and borrower. The lender would have a safe and secure investment; the borrower would obtain capital that would enable him to enlarge his business, and also enable him to be able to hold his crop until such times or until he is satisfied he can obtain the top of the market for the same.

This section of South Carolina, in my humble judgment, will bear investigation by the man looking for a safe and growing section of the country where he can invest his money and by so doing make a No. 1 investment.

A. B. ADAMS.

Anderson, S. C., October 19.

### To American Turpentiners.

A British trade journal contains the following of interest to Americans directly or indirectly concerned in the turpentine trade: "There seems to be no sign of American turpentine becoming more abundant, and, therefore, cheaper. What

the Americans should do, if they intend their turpentine trade to revive, is to replant their old forest lands, and to see that in future every tree that is killed by getting the turpentine is replaced by a new one. The dearth of the American article has caused a good many adulterated samples to be on the market, so that buyers who contract for the genuine American article ought to be on their guard. Then, again, it has led to many substitutes being offered under a variety of names. Some of these contain some turpentine, others do not; some are good, others leave much to be desired." The same journal, according to a United States consular report, notes the attention being paid to Russian turpentine and to methods of refining it, so that brands of this article can be obtained of excellent quality, free from any unpleasant odor, and which may very well be used in place of American turpentine. Attention is also being directed to rosin spirit. This has always had a small sale as a thinner for paints and varnishes, and the grades that were made proved themselves to be fairly good for this purpose, but generally they suffered from the defect of containing traces of rosin oil, which prevented them from drying properly. Now, however, more care is taken to refine the spirit and to free it from all traces of oil, so that the best grades of today are of a good water-white color, free from rosin oil, and dry properly, though perhaps somewhat slower than turpentine. It is said, however, of both Russian turpentine and rosin spirit that only the best refined grades will work well in connection with paint and varnish making.

### Exports at Gulfport.

The rapidity of the growth of the foreign lumber business at Gulfport, Miss., has been phenomenal, exports having risen from 47,000,000 feet in 1903 to 193,000,000 feet in 1904. During September, 1904, the foreign shipments amounted to 20,000,000 feet, as compared with 11,000,000 feet the previous year. For the three months ending with September the exports amounted to 67,000,000, or more than twice the amount shipped during the same three months of 1903. Present shipments are at the rate of over 250,000,000 feet yearly.

### Wants Cypress Timber.

John Ruddle, offices in the Navigation Building, Mauch Chunk, Pa., writes the Manufacturers' Record that he wants to correspond with manufacturers or dealers from whom he can obtain cypress timber cut in 44-foot lengths.

### Lumber Notes.

Of the award of 2,600,000 feet of lumber for the Panama canal, the Continental Lumber Co. of Houston, Texas, received the contract for 500,000 feet, the rest going to a San Francisco company operating in the Puget Sound region.

In Bryan county, Georgia, about 20 miles south of Savannah, the plant of the Hilton & Dodge Lumber Co. is nearing completion. It will have a daily capacity of 175,000 feet of lumber, and it is expected to begin operation by January 1.

### Tiling, Metal Ceilings, etc., Wanted.

Messrs. R. K. Mutishaw & Co., 9 Love Lane, Bombay, India, write the Manufacturers' Record that they want full particulars regarding American-made enameled and embossed tiling for floors and walls, metal ceilings, cornices, borders, rubber mats, novelties, etc. Manufacturers and exporters are invited to send catalogues and discount lists, together with full details as to weights, etc.

Real estate agents of Florida have formed a permanent organization.

## MECHANICAL

### The Diesel Engine.

Mr. James T. Fuller, a well-known Texas mechanical engineer, who was inventor of a round-bale press owned by the Planters' Compress Co., and also of the needle gin, now being developed, writes the Manufacturers' Record as follows:

"While in Providence last week I had an opportunity to make an investigation of the Diesel Engine in its various stages of construction and in the testing department of the Corliss Engine Works. I was greatly impressed with the mechanical design of this invention and the manner in which each individual engine is tested before shipping. The testing department is equipped with foundation floor plates and heavy cranes for handling purposes. The engines are securely bolted to the foundation plates, the oil accurately weighed and testing operations are conducted under various friction loads. By means of the Prony brake the power developed is ascertained at all times. The test is carried on continuously, and if necessary further tests are made by means of a dynamo and water resistance. When each engine has thus demonstrated its efficiency for oil consumption and all parts have been properly adjusted, it is ready for shipment to its ultimate destination. In noting the general design the surplus of strength is evident in each part and the construction is such as to easily care for the great expansive force brought about by the complete combustion of the crude oil in the cylinder and its conversion into available power at the flywheel. The smooth-running and close-governing features fully justify the success achieved in the electric-lighting field. I was particularly impressed by the small amount of lubricating oil required and the cleanliness of the engine while in operation. The absence of complicated apparatus for ignition, which is often an element of weakness in gas and gasoline engines, was distinctive.

"The introduction of the Diesel Engine in the South, and especially the Southwest, will solve a problem that has become more perplexing as time has passed. During the early days wood from the forest was the universal fuel, as the country was being cleared up for farming, and cordwood was a drug on the market. As settlement progressed and as cotton ginneries, oil mills, compresses and various industries multiplied the available wood supply as a cheap fuel was exhausted. Coal was hauled hundreds of miles to feed the furnaces of the ginneries and the mills. Good coal was very expensive in the Southwest, and the fuel question became a very perplexing one with the various establishments. The gasoline engine has been introduced with success, and for pumping water is rapidly superseding the windmills in the extreme Southwest.

"On the opening of the oil fields, with millions of barrels of oil available, the power-users of the tributary territory purchased storage tanks and installed oil-burners under their boilers. At best this is a wasteful method of transforming the heat units of the oil into available work. There is a loss at the burner in forming the oil into a spray, a loss in the furnace through radiation and improper combustion, and a loss in the high temperature in the escaping chimney gases. Under the best conditions the amount of energy converted into steam was but a small fraction of that delivered to the burners. The well-known efficiency of the average slide-valve engine exhausting into the atmosphere greatly added to the total loss until the amount of power obtained at the engine driving wheel does not, on an average, exceed 5 per cent. of the power in the oil, while the Diesel Engine, on the other

hand, uses from 25 to 30 per cent. of the heat energy available. The idea is absolutely scientific. It means the transformation of the oil into heat and the heat directly into power on the crankshaft of the engine. This is a simple short cut, but a revolutionary short cut, for the oil-users of the South, and the day is not far distant when the Diesel Engine will be a familiar factor in the economies of every Southern community, though, to my judgment, it will first attain its greatest usefulness in the Southwest.

"The oil mill and cotton ginnery will find it to their advantage to use this method of economical power conversion, for, as compared with an ordinary slide-valve engine of 70 horse-power and oil at three cents a gallon and good coal at \$3.50 per ton, the saving in fuel alone for a day of 10 hours will be about \$6, to which should be added \$2.50 for coal and ash handling and firing, or a total of over \$8.50 per day, while the maintenance cost will be much less.

"In the small towns it will be found that if a dynamo is added with the Diesel Engine to the ever-present ginnery a profitable business is at hand in lighting the stores and homes of the townspeople. The gin is operated during the day in season and the dynamo during the evening, and if desired the ginnery may be operated for the balance of the night after the lighting load has been reduced to a few street lamps. The increased economy of the Diesel Engine on underloads is especially desirable for this service.

"This method, of course, only applies to the hundreds of small towns that could not afford to install a separate lighting plant, while the Diesel Engine has a distinct advantage in larger towns and cities for the most economical production of electricity for power and lighting. This has already been demonstrated by numerous plants now in operation."

Further information can be had from the International Power Co., 74 Broadway, New York.

### A New "Monarch" Mill.

The Monarch Six-Roll Corn and Feed Mill is claimed to be the simplest, most durable and most economical three-pair high-roller mill on the market. Note the illustration herewith.

Having a great many calls for three-pair high-roller mills, Messrs. Sprout, Waldron & Co. of Muncy, Pa., purchased from the Rochester Roll Grinding & Corrugating Co. patterns, patents, good-will, etc., of the Dawson Roller Mill, formerly manufactured by the Dawson Manufacturing Co. of Jackson, Mich.

This mill will be built in three sizes, with rolls 9x18 inches, 9x24 inches and 9x30 inches, and will have special corrugations for grinding corn, corn and oats and mixed grain of any form or manner either fine or coarse, as may be desired.

The frame is rigidly constructed and will stand the most severe usage. The bearings are of large proportions and are so arranged that they can be well lubricated at all times. Doors are placed conveniently beneath each pair of rolls, so that the stock can be examined at the convenience of the miller. By adjusting either end of the bridgetree up or down the tramping of the rolls is accomplished. By a little care an absolutely perfect adjustment can be procured by this system. The rolls are each secured rigidly in place by the tightening of a set screw. The bridgetree may then be firmly clamped to the side of the machine by a jamb-nut. By the mere touch of a lever each pair of rolls may be thrown apart or together, by which movement the adjustment of the rolls is not altered, nor will it permit the rolls to touch.

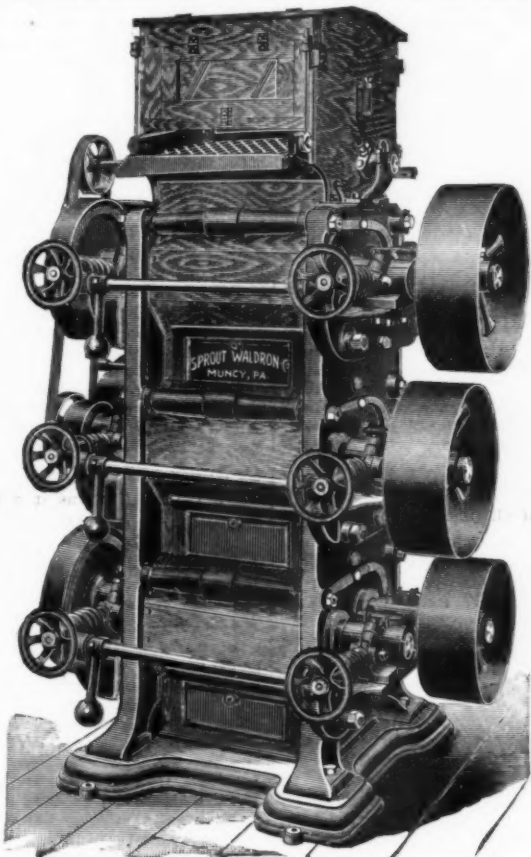
No dismantling of the machine is neces-



sary to remove the rolls, as they may be taken out at either end of the machine by simply removing the panel. Millers who have occasion to remove rolls will appreciate this very important feature. All

were to pass between them. It contains an automatic vibratory feeder which is positive, feeding a uniform stream at all times the full length of the roll.

For prices or any additional informa-



"MONARCH" SIX-ROLL CORN AND FEED MILL.

parts are easily accessible and interchangeable.

The rolls used in the Monarch will be of the Ansonia manufacture, and will be corrugated so as to give the best results. The mill is driven by one belt from the line shaft, belt running over the pulleys attached to the fast rolls, the slow rolls

tion address Sprout, Waldron & Co., Muncy, Pa., who will be glad to give into details and make special quotations.

#### A New Compound Steam Pump.

An accompanying illustration shows a new compound steam pumping engine recently put on the market by the American

are arranged in line with an adjustable stem-coupling. Both are operated by valve-moving pistons of ample size, having ports opening to pressure and exhaust alternately by means of an auxiliary valve actuated by link and lever connections to a fixed link block carried by the piston rod.

The link connections to the auxiliary valve are so devised that the ports are opened and closed slowly at the stroke terminals to prevent a too emphatic reversal of the moving parts. The links are easily adjustable, even while the pump is in motion, to change the stroke, and as all the parts of same operate in fixed bearings without lost motion or tappet contacts, the gear is noiseless in action.

In this new "American" pump the pistons are brought to a rest and again started so gradually that a high intermediate speed is possible if required, and even when so working under high-water pressure the pulsations of the pump valves are hardly noticeable, so soft is the action.

The construction and arrangement of the steam and auxiliary valves is such that the prompt and certain action of the engine under all conditions is assured, as the parts cannot assume such a position as would cut off steam from both main and auxiliary valve ports at the same time, and it is obvious that if either is in position to take steam when the pump is stopped by throttle or automatic governor the engine will start again immediately when steam is applied. Engineers in charge of plants that have had the worry and troubles attending "hung-up" pump will appreciate this positive feature of the "American."

The steam valves are self-governing to the extent that the suction may be broken when throttle is wide open without danger to pump or fittings, as well as insuring the most economical use of steam.

The construction of the "American" is unquestionably of the best. The rod between the steam pistons is of steel, turned perfectly true; the water piston rod is of Tobin bronze; the water-cylinder lining,

steam cylinders and chests are lagged with heavy sheet steel having asbestos filling; a false head of polished bronze caps the outside steam cylinder; an oil pump is provided properly piped to both steam cylinders. An automatic governor, a revolution counter, drain valves, wrenches and extra packings are furnished with each pump. All chest and cylinder heads, flanges, valve rods, stems and levers are nicely polished, and the lagging is secured with polished brass bands.

The maker guarantees this pump to be perfectly satisfactory in every way; that the steam consumption shall not exceed 45 pounds of dry steam per horse-power hour at nominal speed; further, that the best of material and workmanship is employed throughout, and any part proving defective from fault of either will be replaced without charge.

#### Literary Notes.

Edmund Burke—A Letter to the Sheriffs of Bristol. Edited with an introduction and notes by James Hugh Moffatt. Publishers, Hinds, Noble & Eldredge, Philadelphia and New York. Price 75 cents.

Applicants for registration as students-at-law in Pennsylvania are required to pass a satisfactory examination upon the subject-matter, the style and the structure, and to answer simple questions about the lives of 12 of the authors of 12 English classics, including the great speech of Burke on conciliation with America and his letter to the sheriffs of Bristol. The lack of any well-annotated edition of the letter led to the preparation of this volume, which aims to present a reproduction of the text of the first edition of the letter, together with facts of Burke's life and notes, necessary to a full understanding of the text. The interest and value of this letter is not confined to law students, but will be found of great value to other students as a model of style and reasoning, and to cultivated persons generally of great interest in revealing the attitude and arguments of many English statesmen in the critical struggle which led to the founding of our nation.

Standard Directory of Cottonseed-Oil Mills. Published by the Cotton Oil Magazine Co., Atlanta, Ga. Price \$3.

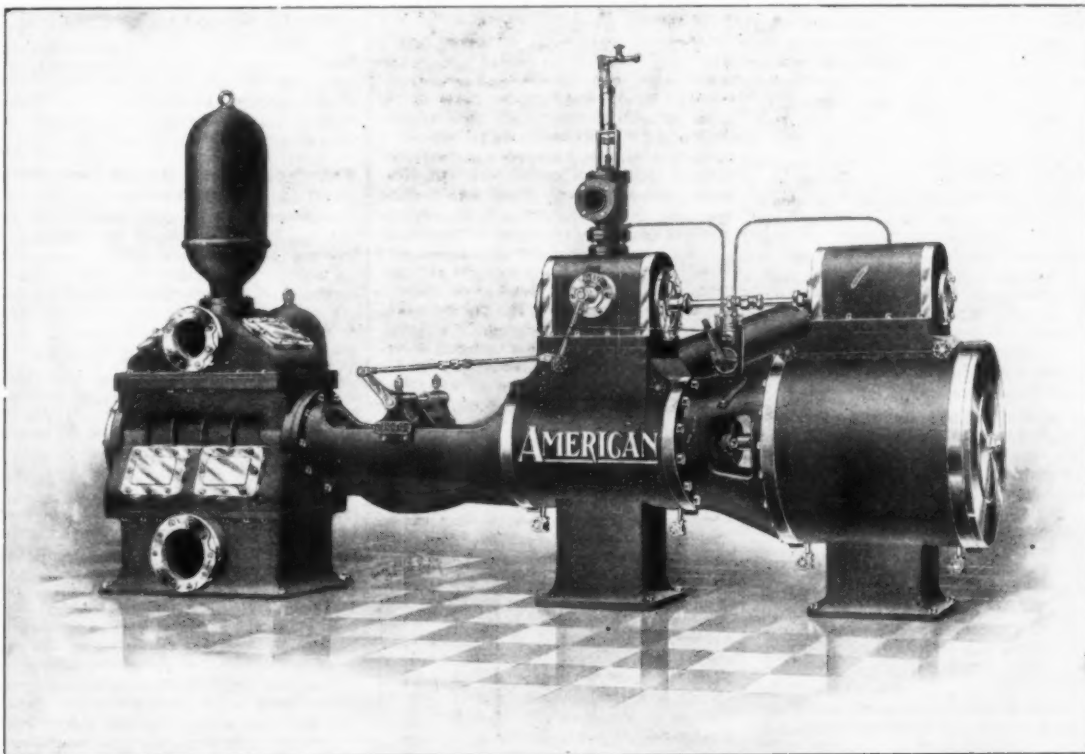
The cottonseed-oil-milling industry of the South has grown to such proportions that a complete directory of the numerous plants is urgently needed, and the publication of one at this time will doubtless be of great satisfaction to many manufacturers and others who have business relations with the industry. The Standard Directory of Cottonseed-Oil Mills gives detailed information about each mill, the facts having been collected at considerable expense by direct correspondence with the owners. The data includes name of each mill and company or owner, location, names of officers, kind of goods produced, number of presses, linters, gin stands, filter presses, telegraph code, date of erection, etc. The various combinations of plants in both small and large companies are also clearly indicated.

#### Fans and Steam Plows.

The American Manufacturers' Agency, P. O. Box 589, Alexandria, Egypt, writes the Manufacturers' Record that it wants to correspond with American manufacturers of steam plows and bracket fans to be operated by water-power.

#### Wants American Manufactures.

Max Goldstein, 21 Eisenacherstrasse, Berlin, Germany, writes the Manufacturers' Record that he desires to obtain agencies for Germany in any line, and requests correspondence, catalogues, etc., from American manufacturers.



A NEW COMPOUND STEAM PUMP.

being driven on the opposite side by means of cut gear-wheels, which impart a positive differential motion. The Monarch is supplied with a double screen which takes out the straws, nails and foreign materials that are likely to injure the rolls if they

Steam Pump Co. of Battle Creek, Mich. This pump presents features of construction and design particularly adapted to high-service duty in elevator or pumping-station work.

The high and low-pressure steam valves

water-valve seats, caps, valve-stem nuts, studs and all cushion valves of bronze; all cylinders are cast separate and mounted on substantial bases, with heavy yoke connections; the water cylinder is provided with ample air and vacuum chambers; the

# Construction Department

## TO OUR READERS!

In order to understand and follow up properly the Construction Department items, please bear in mind the following statements:

### EXPLANATORY.

The MANUFACTURERS' RECORD seeks to verify every item reported in its Construction Department by a full investigation and complete correspondence with everyone interested. But it is often impossible to do this before the item must be printed, or else lose its value as news. In such cases the statements are always made as "rumored" or "reported," and not as positive items of news. If our readers will note these points they will see the necessity of the discrimination, and they will avoid accepting as a certainty matters that we explicitly state are "reports" or "rumors" only. We are always glad to have our attention called to any errors that may occur.

\* Means machinery, proposals or supplies are wanted, particulars of which will be found under head of "Machinery, Proposals and Supplies Wanted."

In correspondence relating to matters reported in this paper, it will be of advantage to all concerned if it is stated that the information was gained from the MANUFACTURERS' RECORD.

### ADDRESS FULLY.

To insure prompt delivery of communications about items reported in these columns, the name of one or more incorporators of a newly incorporated enterprise should be shown on the letter addressed to that town, or to the town of the individual sought, as may be shown in the item, as sometimes a communication merely addressed in the corporate or official name of a newly established company or enterprise cannot be delivered by the postmaster. This will help to insure prompt delivery of your communication, although it is inevitable that some failures on the part of the postal authorities to deliver mail to new concerns will occur.

### WRITE DIRECTLY.

It is suggested to advertisers and readers that in communicating with individuals and firms reported in these columns, a letter written specifically about the matter reported is likely to receive quicker and surer attention than a mere circular.

## BALTIMORE BUILDING NOTES.

### Business Buildings.

Baltimore—Dwellings.—Patrick Kerns, Burlington, N. J., has purchased 16 acres of property located on Maryland avenue, Oak and 36th streets and Huntingdon avenue, and intends to improve the site with dwelling-houses.

Baltimore—Store Building.—Patrick Kirwan, 191 West Fayette street, has engaged a superintendent of construction for his store building to be located at 9 West Fayette street, and will erect the building himself. Structure to be four stories high with basement, 19x74 feet; brick with ornamental terra-cotta trimmings; concrete foundation; steel beams; slag roofing; galvanized-iron cornice; electric wiring and fixtures; sanitary plumbing; steam-heating system. Hale & Morse and Butler & Rodman, 335 North Charles street, associated architects, prepared the plans and specifications for the building. This building previously mentioned.

Baltimore—Warehouse.—R. S. Carswell, 423 Gorsuch avenue, has applied for permit for the construction of warehouse to be located at 106 South Calvert street. Structure to be three stories high with basement, 20x45 feet; brick with granite base and bluestone trimmings; concrete foundation; steel beams; slag roofing; galvanized-iron cornice; fire shutters; gas fixtures; sanitary plumbing; elevator. Elevator not included in contract. This building previously mentioned.

Baltimore—Business Building.—Wm. H. Surratt, Central Savings Bank Building, 3 East Lexington street, has purchased the property located at 29 West Baltimore street, and has stated that a business building would be erected on the site, which is 29x155 feet. Architect for the structure has not as yet been selected.

Baltimore—Store Building.—Further details have been obtained concerning store building for Charles J. Bonaparte, 216 St. Paul street, to be located at 215 East Baltimore street after plans and specifications by

Hoyt & Mackintosh, architects, 11 East Pleasant street. Structure to be three stories high with basement, 18.6x104 feet; white terra-cotta exterior; granite base; concrete foundation; steel beams; slag roofing; metal frames and sashes glazed with wireglass; electric wiring and fixtures; sanitary plumbing; steam-heating system; dumbwaiter; two galvanized-iron skylights. Charles L. Stockhausen, 414 East Fayette street; John Cowan, 106 West Madison street; John A. Sheridan Company, 321 North Holliday street, and Henry S. Rippel, 7 Clay street, have been selected to estimate on the construction. Bids to be in October 27.

Baltimore—Dwellings.—Edward J. Gallagher, builder, 2638 East Baltimore street, will erect for himself 14 dwellings to be located on Kenwood avenue, near Fayette street, after his own plans and specifications. Structures to be two stories high with basements; brick with stone trimmings; tin roofing; galvanized-iron cornices; gas fixtures; sanitary plumbing; cost to be about \$14,000.

Baltimore—Business Building.—Mrs. Henry Barton Jacobs, 11 West Mt. Vernon Place, has commissioned Wyatt & Nolting, architects, Builders' Exchange Building, 2 East Lexington street, to prepare tentative plans and specifications for business building to be located at northwest corner Light and German streets.

Baltimore—Office Building.—Revised plans and specifications have been made by Haskell & Barnes, architects, Central Savings Bank Building, 3 East Lexington street, for office building for Hyland P. Stewart, Builders' Exchange Building, 2 East Lexington street, to be located at German street and Wine alley. George Bunnecke & Sons, 305 St. Paul street; Kendrick & Roberts, Inc., 216 North Liberty street; James Worthington, 120 North Calhoun street, and Burnham & Wells, Builders' Exchange Building, 2 East Lexington street, are estimating on the work. Bids to be in October 27. Full details concerning this building previously mentioned.

Baltimore—Warehouse.—Eugene Levering, 28 West Lexington street, has awarded contract to D. W. & G. H. Thomas, builders, 419 North Charles street, for the construction of warehouse to be located at 102 Commerce street, after plans and specifications by Edward H. Glidden, architect, Wilson Building, 301 North Charles street. Structure to be three stories high with basement, 33.7x64.10 feet; brick with granite base and Indiana limestone trimmings; concrete foundation; steel beams; slag roofing; galvanized-iron cornice; limestone coping; metal frames and sashes glazed with wireglass; prismatic glass; vault lights; vault door; cost to be about \$8000. This building previously mentioned.

Baltimore—Office Building.—Frank Brown, 324 North Charles street, has awarded contract to B. F. Bennett, builder, 123 South Howard street, for the construction of office building to be located at 16 West Saratoga street, after plans and specifications by Henry Brauns, architect, 113 West Saratoga street. Structure to be three stories high with basement, 22x56 feet; brick with stone trimmings; concrete foundation; steel beams; electric wiring and fixtures; sanitary plumbing; steam-heating system; cost to be about \$6000.

Baltimore—Dwellings.—John R. Fountain, builder, 1929 East Baltimore street, will erect himself two dwellings to be located on St. Paul street, near 30th street. Structures to be three stories high with basement, 19x45 feet; brick with stone trimmings; concrete foundation; tin roofing; galvanized-iron cornice; electric wiring and fixtures; sanitary plumbing; heating system; cost to be about \$6500.

Baltimore—Store and Building.—Further details have been obtained concerning store and office building to be erected at 107, 109, 111 and 113 East Baltimore street, after plans and specifications by Beecher, Frix & Gregg, architects, southeast corner Hamilton and Cathedral streets, for the Carroll estate, Continental Trust Co., trustee, southeast corner Baltimore and Calvert streets. Structure to be four stories high with basement, 61.2x68.3 feet; brick with Indiana limestone and terra-cotta trimmings; concrete foundation; steel-frame fireproof construction; reinforced concrete floors (short span); slag roofing; metal frames and sashes glazed with wireglass; vault lights; interior marble work. Electric wiring and fixtures, plumbing, heating system, elevators, interior finish and store fronts not included in contract. Henry Smith & Sons Co., 116 South Regester street; John

Waters, 23 East Center street; Burnham & Wells, Builders' Exchange Building, 2 East Lexington street; James Stewart & Co., 319 North Charles street; Henderson & Co., Ltd., 218 West Fayette street; Murphy Construction Co., 202 West Fayette street; John A. Sheridan Co., 321 North Holliday street, and Morrow Bros., 212 Clay street, have been selected to estimate on the construction. Bids to be in October 29.

Baltimore—Store Building.—S. E. D. Stuart, 516 North Broadway, has awarded contract to J. C. German & Co., builders, 13 Clay street, for the construction of store building to be located at 404 and 406 East Baltimore street, after plans and specifications by Jacob F. Gerwig, architect, 16 Clay street. Structure to be three stories high with basement; brick with stone trimmings; concrete foundation; steel beams; tin roofing; galvanized-iron cornice; electric wiring and fixtures; sanitary plumbing; steam-heating system. This building previously mentioned.

Baltimore—Residence.—October 26 is the date set for submitting estimates on construction for the residence for Dr. J. Hall Pleasants, 1110 North Charles street, to be located on Chase street, near Charles street, after plans and specifications by Wyatt & Nolting, architects, Builders' Exchange Building, 2 East Lexington street, and full details concerning which were recently reported in this column.

Baltimore—Store Building.—E. Glenn Perrine, 18 East Lexington street, will erect store building at 209 North Liberty street. The site is 25x56 feet. Plans for the building have been submitted by a local builder.

Baltimore—Hotel and Restaurant.—L. H. Neudecker, president Southern Trust & Deposit Co., Gay and High streets, has commissioned Thomas C. Kennedy, architect, 331 North Charles street, to prepare plans and specifications for the completion of hotel and restaurant to be located at northwest corner Baltimore and Gay streets. Structure to be three stories high with basement, 24x66 feet; Pompeian brick with terra-cotta trimmings; concrete foundation; steel beams; cast-iron columns; metal ceilings; tin roofing; galvanized-iron cornice; electric wiring and fixtures; sanitary plumbing; steam-heating system. This building has been partially erected by Chas. L. Stockhausen, builder, 414 now engaged John Hughes, Jr., builder, 223 St. Paul street, to complete the erection of the building.

Baltimore—Warehouses.—Further details have been obtained concerning nine warehouses to be erected at northeast corner Hanover and Lombard streets for James E. Ingram, Sr., Light street and Ohio avenue, after plans and specifications by Ellicott & Emmart, architects, 23 North Charles street. Structures to be five stories high with basements, 19.4x175.5 feet; brick with granite base and terra-cotta trimmings; concrete foundations; steel girders and columns; slag roofing; metal frames and sashes glazed with wireglass; galvanized-iron cornices and skylights; vault lights; reinforced concrete archway; electric wiring and fixtures; sanitary plumbing. Heating system, 10 elevators and nine pavement lifts not included in contract. J. H. Miller, 110 Dover street; Edward D. Preston, 140 West Fayette street; Henry Smith & Sons Company, 116 South Regester street; James Stewart & Co., 319 North Charles street; Wm. Steele & Sons, 17 West Saratoga street; Cramp & Co., 407 St. Paul street; Henderson & Co., Ltd., 218 West Fayette street; John Cowan, 106 West Madison street; John Hilts & Son, 3 Clay street; Charles Gilpin, 21 East Saratoga street, have been selected to estimate on the construction. Date for submitting estimates will be published later.

Baltimore—Restaurant.—Pierre C. Dugan & Nephew, real estate, 16 East Lexington street, have purchased for Mrs. Annie E. Kelly the property located at 29 South Gay street. Mrs. Kelly intends to erect a restaurant on the site, which is 22.6x90 feet.

Baltimore—Warehouses.—W. C. Nimmo & Co., tinplate and metal dealers, 327 North Calvert street, have purchased the property located at 109 and 111 Chesapeake and will erect on the site two warehouses. Structures to be four stories high, 42.6x66 feet; brick with stone trimmings; concrete foundations; steel beams; tin or slag roofing; galvanized-iron cornices and skylights; electric wiring and fixtures; sanitary plumbing. Architect for the building has practically been selected.

Baltimore—Store Building.—J. Appleton Wilson, architect, 303 Courtland street, has

awarded contract to George Bunnecke & Sons, builders, 305 St. Paul street, for the construction of store building to be located at 34 and 36 Centre Market Space and 614 Water street after his own plans and specifications. Structure to be three stories high, 33.3x60 feet; brick with stone trimmings; concrete foundation; steel beams; cast-iron columns; tin roofing; galvanized-iron cornice; electric wiring and fixtures; sanitary plumbing; steam-heating system. Nicholas Reiter & Co., grocers, 416 North Calvert street, will occupy the building. This building previously mentioned.

Baltimore—Dwellings.—Edward G. Storck, builder, Winston avenue, near York road, will erect himself six dwellings to be located on Montford avenue, near Madison street. Structures to be two stories high, 13.4x43 feet; brick with stone and marble trimmings; tin roofing; galvanized-iron cornices; gas fixtures; sanitary plumbing; furnace-heating system; cost to be about \$6000.

Baltimore—Dwellings.—Abraham Niefeld, 1502 North Bond street, will erect himself six dwellings to be located on Montford avenue, near Ashland avenue. Structures to be two stories high, 13.4x43 feet; brick with stone and marble trimmings; tin roofing; galvanized-iron cornices; gas fixtures; sanitary plumbing; furnace-heating system; cost to be about \$6000.

Baltimore—Warehouse.—Elias Schmidt of E. Schmidt & Co., 300 East Pleasant street, has commissioned Louis Levi, architect, Central Savings Bank Building, 3 East Lexington street, to prepare plans and specifications for warehouse to be located at 8 South Liberty street, which he has recently purchased. Structure to be four or five stories high, 20x87 feet; brick with stone or terra-cotta trimmings; concrete foundation; steel beams; tin or slag roofing; electric wiring and fixtures; sanitary plumbing; steam-heating system; power elevator.

Baltimore—Warehouse.—The Patapsco Oil & Grease Co., John Ryan, Jr., proprietor, 212 South street, has purchased the property located at 115 Chesapeake and will erect warehouse to be located on this site and also 117 Chesapeake, which he already owned. Structure to be four stories high, 36x66 feet; brick with stone trimmings; concrete foundation; steel beams; tin or slag roofing; galvanized-iron cornice; electric wiring and fixtures; sanitary plumbing. The architect who will prepare the plans and specifications for the building has practically been decided upon.

Baltimore—Dwellings.—The Charles E. Spaulding Company, 213 Courtland street, has purchased the property located on Park Heights avenue, between Second and Third avenues, and will erect dwelling-houses on the site, which is 450x160 feet.

### Manufacturing Buildings and Other Enterprises.

Baltimore—Grain.—The Thomas Leishear Company has been incorporated, with an authorized capital stock of \$5000, for conducting a grain commission business, by Thos. Leishear, 108 West Saratoga street; Blanchard Randall, 301 North Charles street; Geo. S. Jackson, 301 North Charles street; Eugene Blackford, Jr., and Joseph G. Reynolds.

Baltimore—Publishing.—The Home Publishing Co. has been incorporated, with an authorized capital stock of \$7000, by Wm. C. Clarke, 718 Ensor street; Jefferson W. Laughlin, 1313 Myrtle avenue; Franklin N. Laughlin, 1313 Myrtle avenue; James Cowan and William Grant.

Baltimore—Paper Mill.—The Johns Hopkins Hospital Trust Estate, 211 North Charles street, which was recently reported in this column as having commissioned Archer & Allen, architects, Central Savings Bank Building, 3 East Lexington street, to prepare plans and specifications for building to be located at northeast corner Lombard and Frederick streets, has leased the building to a Southern paper-manufacturing enterprise that intends to locate in Baltimore. Structure to be four stories high, 78x106 feet; brick with stone trimmings; concrete foundations; steel beams and girders; cast-iron columns; slag roofing; electric wiring and fixtures; sanitary plumbing; steam-heating system; power elevators.

Baltimore—Box Factory.—J. H. R. Asendorf, 109 West Mulberry street, has commissioned Thomas C. Kennedy, architect, 331 North Charles street, to prepare plans and specifications for box factory to be located at corner Stockholm and Russell streets. Structure to be one story high with basement, 57x100 feet; brick with stone trim-



mlings; concrete foundation; cast-iron columns; slag roofing; sanitary plumbing; steam heating.

Baltimore—Can Factory.—J. P. Tallafiero, E. Norton and a Mr. Larkins, all of New York, are investigating in Baltimore with a view to establishing a can factory which is to be a branch of a large can company about to be organized in New York.

Baltimore—Coffee-roasting Plant.—Further details have been obtained concerning coffee-roasting plant to be erected on South Caroline street for the Enterprise Coffee Co., 621 North Calvert street, after plans and specifications by Thomas C. Kennedy, architect, 331 North Charles street. Structure to be three stories high, 38.3x62.5 feet; brick with granite base and trimmings; concrete foundations; steel beams; cast-iron columns; slag roofing; metal frames and sashes glazed with wireglass; mill construction; sanitary plumbing. Sidewalk paving, gas-piping, electric wiring, foundations for boiler, engine, roasters and other machinery, ducts, shafts or chutes for machinery not included in contract. W. T. Murphy, 553 North Howard street; McIver & Piel, Builders' Exchange Building, 2 East Lexington street; John A. Sheridan Company, 321 North Holliday street; Henry S. Rippel, 7 Clay street; C. L. Stockhausen, 414 East Fayette street, and C. Sheehan & Son, 117 East Centre street, have been selected to estimate on the construction. Bids to be in November 2.

#### Subbids Wanted.

Mention of contractors wanting subbids on construction work and material will be found, when published, in the "Machinery Wanted" column on another page under the heading of "Building Equipment and Supplies."

#### ALABAMA.

Birmingham—Steam and Elastic-fluid Turbines.—Wilkinson Turbine Co. has been incorporated, with \$200,000 capital, by James Wilkinson, J. M. Dewberry, Fred M. Jackson, H. M. Unrath, Eugene F. Enslin and associates, to manufacture steam and elastic-fluid turbines. Mr. Wilkinson was reported in June as to establish plant for the manufacture of a steam turbine which he had invented.

Birmingham—Graphite Company.—Allen Graphite Co. has increased capital from \$40,000 to \$60,000.

Florence—Trousers Factory.—M. Friedland, previously reported as to establish trousers factory, has secured building on South Court street, which will be equipped with the necessary machinery. Electricity for operating will be obtained from local company.

Jasper—Talc Mines.—It is reported that F. S. Lewis of Chicago, Ill., is developing talc mines near Jasper.

Mobile—Cotton Compress.—Gulf Compress Co. has increased capital from \$25,000 to \$100,000.

Mobile—Grain Elevator.—Reports state that P. P. Williams of Memphis, Tenn.; W. H. Fitzhugh of Vicksburg, Miss., and T. W. Heils of St. Louis, Mo., contemplate establishing grain elevator, and are investigating site.

Woodlawn (P. O. Birmingham)—Sewerage System.—City will vote on the issuance of \$30,000 of bonds for the construction of sanitary sewerage system. Address The Mayor.

#### ARKANSAS.

Coal Hill—Coal-mining.—West Coal Co. has been incorporated, with \$1000 capital, by L. C. Pennington, W. H. West and J. M. Quail to mine and ship coal.

De Queen—Fruit Company.—A. H. Burg, R. S. Hunsucker, James L. Cannon and J. N. Wallace have incorporated the De Queen Fruit Co., with \$300,000 capital.

Fort Smith—Real Estate.—Incorporated: Mammoth Vein Royalty Co., with \$8750 capital, by Franklin Bache, Wm. J. Echois, C. E. Spear and James F. Read, to deal in real estate.

Helena—Water-works and Electric-light Plant.—Municipal ownership of water-works and electric-light plant is being advocated. Hugh Martin is mayor.

Hamburg—Lumber Company.—E. M. Strawn Lumber Co. has been incorporated, with \$30,000 capital, by E. M. Strawn, E. R. Wall, L. A. Thomure and J. L. Durham.

Hot Springs—Pottery.—It is reported that Colonel Worthington and associates will erect pottery at a cost of \$200,000.

Little Rock—Coal-mining.—Max Mayer, Geo. W. Clements and Fred Schader are developing coal deposits near Little Rock.

Pine Bluff—Sewerage System.—Dunnegan & Sykes, Shenandoah, Iowa, have been awarded contract for proposed sewer, District No. 1.

Pine Bluff—Lumber Mill.—Sawyer & Austin will rebuild lumber mill reported burned last month at a loss of \$500,000.

Pine Bluff—Water-works.—City Engineer Harper states the city does not contemplate constructing water-works, as reported last week.

Searcy—Cotton Mill.—T. B. Paschal is interested with James L. Graham in organizing the proposed cotton-mill company reported last week. They have correspondence from an Eastern company that desires to remove a 15,000-spindle and 300-loom plant to the South.

Texarkana—Jewelry Company.—A. C. Arnold, R. T. Moore and L. F. Arnold have incorporated as Arnold & Co., with \$25,000 capital.

#### FLORIDA.

Braidentown—Sewerage, Street Paving, etc.—City will construct sewers and drains; also pave streets; A. T. Cornwall, mayor.

Gainesville—Ice Plant.—Diamond Ice Co., T. B. Stringfellow, president; R. F. Stringfellow, vice-president, and R. B. Livingston, secretary-treasurer, will establish ice plant. Company is capitalized at \$60,000.

Graceville—Electric-light Plant and Water-works.—Graceville Electric Light & Water Co. has been incorporated, with \$20,000 capital, and privilege of increasing to \$100,000, to operate electric-light plant and water-works. John M. Calhoun is president and treasurer; M. F. Boone, vice-president, and Robert J. Boone, secretary and superintendent, all of Marianna, Fla. Ten-year franchise for water-works and electric-light plant was reported last month as granted to Robert J. Boone.

Lake Helen—Factory Building.—Sandstone Brick Co. will erect factory building.

Lakewood—Lumber Company.—W. H. Britton, W. A. Mills, E. P. Rodwell and D. A. McPhail have incorporated the Britton Lumber Co. with \$100,000 capital.

Monticello—Electric-light Plant.—C. L. Thompson and John M. Henry, Jr., will install electric-light plant, and have contracted with the town for furnishing light and power.

Monticello—Turpentine Still.—Reports state that McClardy & Patterson will establish turpentine still.

Orlando—Packing Plant.—T. H. Barlow and Eugene Hunt will erect fruit-packing house, 50x100 feet.

Parrish—Vegetable and Fruit Company.—Parrish Vegetable & Fruit Co. has been incorporated with \$30,000 capital by C. P. Parrish, Leonidas Sims and Jesse Sims.

Pensacola—Saw-mills, etc.—Southern Hardwood Manufacturing Co. has been incorporated, with \$50,000 capital, to operate saw-mills, manufacture lumber, etc.; incorporators, A. M. Avery, A. M. Avery, Jr., C. W. Hagerman, F. B. Hagerman and L. Hagerman.

St. Augustine—Electric-light Plant.—Edwin E. Mandeville, C. H. A. Littleton of Philadelphia, Pa., and associates contemplate erecting electric-light plant. Chas. E. Gard of St. Augustine can be addressed.

West Tampa (P. O. Tampa)—Water-works and Street Paving.—City will sink artesian well, extend water mains and pave streets, and bids for the work will shortly be asked. Address The Mayor.

#### GEORGIA.

Atlanta—Bottle-seal Company.—Albert J. Wood, Albert P. Wood, Edward P. Wood of Atlanta, Judson Lawson, Clarence J. Lawson, John T. Tonjes and Diedrich Tonjes of New York, N. Y., have incorporated the American Bottle Seal Co., with \$100,000 capital, and privilege of increasing to \$1,000,000.

Atlanta—Pine Lands.—Yellow Pine Lands Co., reported incorporated last week under Birmingham, Ala., with \$50,000 capital, will operate in Georgia. Chas. J. Haden, Prudential Building, Atlanta, can be addressed.

Atlanta—Cigar Company.—Incorporated: Cruickshank Cigar Co., with \$3500 capital, by R. P. Jones, George R. Bush and A. Cruickshank.

Americus—Carbonating Plant.—Charles J. and George B. Graham will establish carbonating plant.

Cannonville (P. O. Gabbettville)—Mercantile.—W. S. Cannon, W. A. Nelms and others have incorporated the W. S. Cannon Company, with \$5000 capital.

Cartersville—Ochre-mining.—T. W. Baxter, John W. Akin and Paul F. Akin have incorporated the Cherokee Ochre Co., with \$30,000 capital, to mine and manufacture ochre.

Columbus—Grain Elevator and Warehouse.—Dan Joseph Company contemplates erecting grain elevator and warehouse to cost \$15,000.

Columbus—Fertilizer Factory.—Davis Warehouse Co. has secured site on which to erect

fertilizer factory. Main building will be 60x150 feet, and will be equipped with machinery giving the plant a daily capacity of 100 tons. About \$50,000 will be invested. Electricity will be used as motive power. Machinery has been purchased.

Eatonton—Cotton Mill and Power Plant.—The Putnam Mills & Power Co., reported incorporated several weeks ago with \$75,000 capital, acquires and will continue the Eatonton Electric Cotton Mills and the Eatonton Electric Co., which Floyd & Co. of Savannah were reported last April as having purchased. As previously announced, the plants have been improved, new buildings erected and 1500 spindles, 112 looms, etc., added. O. B. Nisbet is manager.

Elberton—Cotton Mill.—Swift's Cotton Mill has begun the erection of an addition, and will install machinery to increase capacity; now has 9500 spindles and 174 looms.

Grovanla—Cottonseed-oil Mill and Cotton Gin.—Grovanla Oil Co. will rebuild cottonseed-oil mill and gin reported burned last week at a loss of \$40,000.\*

Macon—Vehicle Works.—Brown Wagon Co. will increase capital from \$50,000 to \$75,000.

Rossville—Lime Works and Plaster Plant.—Chickamauga Cement Co., which has just completed the installation of plant for manufacturing hydrating lime under a patented process, will later install a hard-wall plaster plant.

Savannah—Marine Railway.—John Rourke & Sons have purchased the marine railway of the Seaboard Line Railway on Hutchinson's Island, which will be extensively improved.

Statesboro—Cotton Gin.—Bullock Oil Mill will award contract at once for the erection of cotton gin to replace one previously reported burned at a loss of \$6000.

Waynesboro—Electric-light Plant.—City has voted affirmatively the proposed bond issue for the erection of electric-light plant. Address The Mayor.

#### KENTUCKY.

Barboursville—Water-works.—Chicago (Ill.) parties, and not local capitalists, as reported last week, will apply for franchise to construct and operate system of water-works. Thomas D. Tinsley, secretary Commercial Club, can be addressed.

Hopkinsville—Polishing Powder.—Lusterine Mining & Polish Co., reported in August as to establish plant for the manufacture of "Lusterine" cleaning and polishing compound, has begun mining the Lusterine and the erection of mill for grinding into fine powder preparatory to marketing. Frank Rives is president; L. Haydon, secretary; W. T. Fowler, treasurer, and J. J. Boynton of Princeton, Ky., superintendent; capital \$100,000.

Kiddville—Saw-mill.—G. D. Cook will erect saw-mill at a cost of \$500 to replace one reported burned last week.

Lebanon—Lumber Company.—Incorporated: Lebanon Lumber Co., with \$50,000 capital.

Lexington—Drug Company.—Lexington Drug Co. has been incorporated, with \$10,000 capital, to absorb the Berry & Jones Drug Co. and the retail department of the Smith-McKinney Co. L. G. Smith is president; R. H. Berry, vice-president, and C. F. Jones, secretary-treasurer; office, Phoenix Hotel.

Louisia—Electric-light Plant.—Reports state that the Louisia Water Co., W. B. Cox, manager, will install electric-light plant; capacity 500 lights.

Paris—Planing Mill.—It is reported that Wells & Taylor of Frenchburg, Ky., are investigating with a view to establishing planing mill.

Winchester—Lumber Company.—Scobee Lumber Co. has been incorporated with \$30,000 capital by R. P. and R. M. Scobee of Winchester and W. H. Treadway of Clay City, Ky.

Yale—Saw-mill.—It is reported that L. C. May, representing Chicago parties, has purchased saw-mill and timber lands of the Yale Lumber Co. in Bath county. It is also stated the Licking Valley Railroad, a narrow-gauge road running from Yale to Salt Lick, is included in the deal. About \$175,000 is involved.

#### LOUISIANA.

Franklin—Oyster-shucking and Cannery.—M. Mills Company, Ltd., with \$5000 capital, to erect and operate an oyster-shucking plant, and later to establish steam cannery for canning oysters, fruits and vegetables. M. Bell is president; E. A. Hanson, vice-president; T. E. Robertson, secretary-treasurer, and M. Mills, general manager.

Jennings—Iron Works.—Dobbins Iron Works, Ltd., has incorporated with \$150,000 capital. Elmer E. Dobbins is president and

treasurer; Jackson H. Helman, vice-president, and Euclide D. Connor, secretary.

Minden—Water-works.—City has let contract for water-works system previously reported to be constructed at a cost of \$36,000. J. S. Thompson of Chicago, Ill., will be engineer in charge.

New Orleans—Real Estate.—Incorporated: Dannemann & Charlton, Ltd., with \$20,000 capital. Frank Dannemann is president; Edward Dannemann, vice-president, and John F. Charlton, secretary-treasurer.

New Orleans—Coffee Company.—Traders' Coffee Co., Ltd., has been organized with C. W. Sturcken, president and manager; Chas. G. Fletcher, vice-president, and Charles Kuhn, secretary-treasurer; capital \$25,000.

New Orleans—Coal Docks.—Incorporated: Mississippi River Coaling Co., with \$100,000 capital, to construct coal docks, wharves, etc. William C. Jutte is president, and J. Charles Jung, vice-president.

New Orleans—Real Estate.—Mellinger Realty Co. has been incorporated with \$21,000 capital. George J. Mellinger is president; Victor E. Sylvester, vice-president, and Steve Mellinger, secretary-treasurer.

Plaquemine—Cooperage.—Louisiana Cooperage Co., Ltd., has been organized by John A. Lanier, Dr. E. Dugas, Ed Rodriguez and Daige L. Sunberry for the establishment of cooperage factory; capital \$50,000. Building will be erected at once. Mr. Dugas and associates were reported last week as having secured site for the establishment of this plant.

#### MARYLAND.

Berlin—Water-works.—The \$15,000 bond issue previously reported to be voted on by the city for the construction of system of water-works has been defeated; Orlando Harrison, mayor.

Frostburg—Building and Supply Company.—Frank L. Clymer, William H. Cutter, Winfield Crowe, Harry J. Cryst and others have incorporated the Allegany Terrace Building & Supply Co. with \$5000 capital.

Havre de Grace—Sewerage System.—City has had surveys made by Williams & Whitney of New York, and is arranging for beginning the construction of about \$20,000 worth of sewerage; John A. Russell, chairman sewer commission.

Laurel—Paint and Varnish Factory.—It is reported that Washington (D. C.) parties have purchased site in South Laurel from Charles F. Shaffer, Jr., for the erection of plant to manufacture paint and varnish.

#### MISSISSIPPI.

Brookville—Furniture and Lumber Company.—Owl Furniture & Lumber Co. has been incorporated, with \$5000 capital.

Columbus—Manufacturing.—C. W. Hill, J. B. Mansfield of Birmingham, Ala., and associates will organize the Mansfield-Hill Manufacturing Co. with \$30,000 capital.

Como (P. O. Como Depot).—Como Lumber Co. has been incorporated, with \$2500 capital.

Greenville—Table Factory.—Reports state that Mr. Scheske of Greenville and a Mr. Humphrey of Battle Creek, Mich., will establish plant for the manufacture of patent extension tables. Mr. Scheske can be addressed care of the Young Men's Business League.

Hattiesburg—Telephone System.—City has awarded 20-year franchise to the Cumberland Telephone Co. to operate telephone system. An entire new system will be installed.

Jackson—Brick Works.—W. F. Smith, Albert Kirkland and W. G. Kirkpatrick have formed the Jackson Brick Co., with \$10,000 capital. Arrangements are being made for the erection of plant in Rankin county, and machinery will be installed having an output of 20,000 bricks daily. W. G. Kirkpatrick is engineer in charge.\*

Mississippi City.—J. Z. George Co. has been incorporated, with \$10,000 capital, by W. D. Corbin, J. Z. George and others.

Nicholson—Lumber and Cooperage Company.—Incorporated: Nicholson Lumber & Cooperage Co., with \$40,000 capital.

Vicksburg—Hardware Company.—Chas. G. Wright, Hamilton H. Wright, Howard M. Turpin, Charles R. Wright of Vicksburg and Lee Peyton of Belton, Texas, have organized the Wright Bros. Hardware Co., with \$100,000 capital, to continue an established business.

Water Valley—Brick and Lumber Plant.—Incorporated: J. A. Norris & Co., with \$30,000 capital.

Yazoo City—Hardware Company.—Yazoo Hardware Co. has been incorporated, with \$50,000 capital.

#### MISSOURI.

Cape Girardeau—Tobacco Company.—Incorporated: Roth Tobacco Co., with \$10,000 capi-

tal, by H. G. Wilson, Martin Roth, D. A. Glenn and others.

Clarksdale—Cotton Compress.—People's Compress Co., reported incorporated last week, will begin the erection of cotton compress in January.

Freeburg—Flour Mill.—E. Frenke will erect flour mill.

Joplin—Mining.—Incorporated: Esteawa Mining Co., with \$50,000 capital, by W. H. Frickelton, W. S. Gray, C. M. McCurdy and others.

Joplin—Land Company.—Cornuco Land Co. has been incorporated by Lydia J. Lanphere, Harriet C. Cosgrove and Edna E. Hank, with \$100,000 capital.

Kansas City—Distillery.—Charles F. Reiger, William Zimmerman and John H. Reincken have incorporated Allmens Distilling Co. with \$250,000 capital.

St. Louis—Chemical Company.—Thymalka Chemical Co. has been incorporated, with \$50,000 capital, by Earl Holden, William R. Colladay and Meredith M. Stockton, to manufacture all kinds of chemicals, chemical appliances, tools, machinery, etc.

St. Louis—Zinc Mines.—Carthage Mining Co. has incorporated, with \$300,000 capital, to mine and mill zinc and lead ores; incorporators, William S. McIntosh, George L. Galvin, J. H. Cockrell, J. C. Hall of St. Louis and H. M. Cornell of Carthage, Mo.

St. Louis—Mining, etc.—Incorporated: St. Nicholas Mining Co., by Douglas Mitchell, Thomas J. Hoolan and Joseph Wirthelmer; capital \$50,000.

St. Louis—Supply Company.—Incorporated: Donovan Iron & Supply Co., with \$10,000 capital, by John F. Donovan, Nellie M. Donovan and Andrew Johnson, to deal in iron, steam supplies, tools, etc.

St. Louis—Development Company.—Charles E. Ware, Bryan Snyder, Charles Cummings Collins of St. Louis, W. G. G. Vincenbeller of Fayetteville, Ark., and G. A. A. Deane of Little Rock, Ark., have incorporated the Ozark Land & Fruit-Growing Co., with \$50,000 capital.

Sweet Springs—Telephone System.—J. H. Dickson, R. Sam Hays, Charles K. Smith and others have incorporated the Sweet Springs Telephone Co., with \$20,000 capital.

#### NORTH CAROLINA.

Albemarle—Lumber Manufacturing.—R. L. Sibley, W. T. Huckabee and W. T. Erld have incorporated the Sibley Manufacturing Co., with \$25,000 capital, to manufacture lumber, etc.

Asheville—Paper Mill.—It is reported that Herbert M. Fuller, representing Chicago capitalists, is investigating site for the establishment of mill for making paper used in printing newspapers, bills, dodgers, etc. If a suitable location is secured a \$100,000 plant will be erected.

Charlotte—Cotton Company.—Atlantic Cotton Co., and not the Carolina Cotton Co., is the correct title of company reported incorporated last week with \$10,000 capital by E. S. Reid, Joseph McLaughlin of Charlotte and E. J. Heath of Matthews, N. C.

Edenton—Land and Lumber Company.—H. E. King, J. N. Pruden and others have incorporated the Tarant Land & Lumber Co. with \$125,000 capital.

Greensboro—Cotton Mill.—A. L. Rain proposes to organize a company for the erection of a cotton mill to have 10,000 or 15,000 spindles. No final details have been decided.

High Point—Gold and Copper Mines.—Randolph Consolidated Gold & Copper Mines Co. has been incorporated, with an authorized capital of \$100,000, to develop gold and copper mines in Randolph county and vicinity; incorporators, W. B. Steele, John Barlow and J. L. Moore.

Lowell—Commission Company.—Incorporated: Groves-Stowe Company, with an authorized capital of \$25,000; incorporators, John W. Groves, Charles F. Stowe and S. M. Robinson.

Pittsboro—Saw Mill.—R. Nooe will rebuild saw-mill previously reported burned at a loss of \$200.

Raleigh—Cotton Mill.—Edward A. Johnson of Raleigh, John L. White and G. V. Kelly of Jersey City, N. J., have incorporated the Lincoln Cotton Mill Co., with capital stock of \$125,000, for manufacturing cotton goods.

Rocky Mount—Guano Factory.—A company is being organized with \$25,000 capital to establish 50-ton guano factory, and H. E. Brewer & Co. are promoting the enterprise.

Statesville—Ice Factory.—Reports state that the Craig Flanigan Harness Co. will establish ice plant.

Swansboro—Lumber Company.—Chartered: Swansboro Lumber Co., with \$10,000 capital, by J. H. Harris and Howard E. Baper.

Wingate—Cotton Gin.—Austin & Perry will rebuild cotton gin reported burned last week at a loss of \$300.

Winston-Salem—Fertilizer Works.—Union Guano Co. has been incorporated with an authorized capital of \$225,000 by H. E. Fries, W. T. Brown, A. F. Moses, W. H. Maslin and associates to establish plant for the manufacture of fertilizers.

#### SOUTH CAROLINA.

Anderson—Electrical Supplies and Construction.—The Piedmont Electric Co., reported last week as incorporated with capital stock of \$25,000, will not build or operate electric plant, but intends to deal in electrical supplies of all kinds and contract for construction work. E. S. Moore, George W. Evans and A. E. Holman are the incorporators. Mr. Holman is the electrical and mechanical engineer in charge.

Calhoun Falls—Water-power-Electrical Plant.—A company has been organized, with Dr. S. M. Orr of Anderson, S. C., president, to develop Bath, Maddox and Glenn shoals on the Savannah river, recently purchased. About 8000 horse-power will be developed and an electric plant built for transmitting power obtained to operate cotton mills and furnishing light and power to adjacent towns. About \$600,000 will be expended. J. E. Strine, Greenville, S. C., is engineer in charge. Machinery has not been purchased.

Chester—Water-power Development.—Carolina Land & Development Co. has purchased site on the Broad river and will at once arrange for the development of water-power.

Darlington—Sewerage System.—City has voted affirmatively the proposed \$30,000 bond issue for constructing sewerage system. Address The Mayor.

Greenville—Water-works.—Paris Mountain Water Co. is about to supplement its gravity water supply on Paris mountain by extending a conduit further around the mountain and impounding the waters of Buckhorn and Woods creek, for which plans are being prepared by the American Pipe Manufacturing Co., 112 North Broad street, Philadelphia, Pa. When plans are completed, which will be in about a month, the dam and reservoir work may be sublet.

Laurens—Shirt and Overall Factory.—T. K. Hudgens, 309 East Main street, and associates will organize \$10,000 company to manufacture overalls, workshirts and men's drawers. A two-story brick building 40x100 feet will be erected. Steam will be used for heating and operating.

Lexington—Cotton Mill.—The Lexington Manufacturing Co. has awarded contracts for 2000 spindles and accompanying preparatory machinery for addition to its plant.

Marion—Real Estate.—Pee Dee Real Estate Co. has been incorporated, with \$5000 capital, by W. F. and Marcus Stackhouse.

McCormick—Water-power Development.—L. F. Dorn of Parkville, S. C.; D. M. Mackay, Dr. F. A. C. Perrin of New York, N. Y., and C. M. Knight of Brooklyn, N. Y., contemplate developing the water-power at Ring Jaw shoals, and surveys are now being made.

North Augusta—Pottery.—J. P. Wood, John Moore and Maurice Walton have incorporated the Wood Pottery Co. with \$8000 capital.

North Augusta—Real Estate, etc.—Chartered: Alexander Johnson Steiner Company.

#### TENNESSEE.

Bethel Springs—Cotton Gin.—J. L. Hendrix, W. D. Hendrix, O. J. Stovall and associates have incorporated the Bethel Springs Gin Co. with \$3000 capital.

Cedar Hill—Canning Factory.—A company has been organized with Cephas Woodard, president; B. B. Sory, vice-president, and E. F. Allnutt, treasurer, to establish canning factory; capital \$7500.

Chattanooga—Railroad Shops.—It is reported that the Cincinnati Southern Railroad (Queen & Crescent Route) has had plans prepared for three story building 125x334 feet for railroad shops, to be equipped with three 80-ton cranes and three turntables. About \$200,000 will be expended. Company has not as yet decided whether the shops will be located at Chattanooga or Somerset, Ky., but plans for the Chattanooga building can be seen at office of James C. Howell, station master, Chattanooga. Wm. Doyle, Somerset, Ky., is superintendent of bridges and buildings.

Crossville—Coal-mining.—Fall Creek Collieries will be organized, with N. C. Chapman, president, and J. N. Baker, general manager, for the development of coal lands on the Tennessee Central Railway, reported last week under Nashville, Tenn., as being developed by Mr. Chapman and associates.\*

Hill City—Water-works.—Reports state

that the City Water Co. of Chattanooga will erect an auxiliary water plant at Hill City at a cost of \$20,000 for supplying that suburb with water.

Humboldt—Flour Mill.—Reports state that a Mr. Evans of Medina, Tenn., is investigating with a view to establishing flour mill, capacity to be 100 barrels per day.

Knoxville—Foundry and Machine Shop.—It is reported that W. S. Bradley has purchased the plant of the Southern Foundry & Machine Co. at \$16,600.

Knoxville—Coal-land Development.—Westinghouse Coal Co. has been organized, and with the Southern Coal & Coke Co., with which it is affiliated, will extensively develop coal mines on the Hog Camp branch of the Knoxville, La Follette & Jellico Railway, in course of construction.

Knoxville—Bottling Works and Warehouse.—Knoxville Bottling Works, T. C. Fox, proprietor, will erect factory building 42x70 and warehouse 30x60 after plans by William Hunt. About \$10,000 will be invested, and the plant will have a daily capacity of 1000 dozen bottles soda water; office, 408-410 North Central street. Mr. Fox was reported last week as to erect bottling works.

Knoxville—Foundry and Machine Shop.—Springer & Lister, who recently purchased site in South Knoxville, are erecting two-story frame building, which will be equipped as foundry and machine shops.

Knoxville—Slate Company.—American Slate Co. has been incorporated by Harmon Kreiss, W. R. Monday, J. S. Kreiss, W. R. Owens and J. B. Jones; capital \$10,000.

Memphis—Shade-tree Company.—J. Santmies, L. Z. Phillips, W. A. Bickford, G. C. Price and A. B. Pittman have incorporated the Southern Shade Tree Co., with \$2000 capital, to plant, buy and sell shade trees.

Nashville—Fertilizer Factory.—H. S. Price of St. Louis, Mo., representing Georgia parties, is investigating site for the establishment of fertilizer factory. It is stated that about \$20,000 will be invested in plant, which will have a yearly output of 15,000 tons of fertilizer.

Pomona Road—Stave Mill.—Crossville Lumber Co. has been incorporated by C. C. Benefield, A. W. McClain and associates, to erect mill to cut oil-barrel staves. Plant will have a daily capacity of 10,000 staves.

Rockdale—Pig-iron Manufacturers.—Rockdale Iron Co. has increased capital from \$25,000 to \$60,000.

Southside—Flour Mill.—It is reported that a company is being organized to establish flour mill. A. E. Hudgins can possibly give information.

Watertown—Sash, Door and Veneering Works.—It is reported that F. Smith will establish plant for making sash, doors, veneering, etc.

#### TEXAS.

Austin—Water-works.—Reports state that F. T. Ramsey has submitted to the city a proposition for furnishing 1,000,000 gallons of water daily.

Beaumont—Sewerage System.—City council has adopted a resolution calling an election for November 15 to vote on the issuance of \$15,000 of bonds to construct sewerage system. Address The Mayor.

Beaumont—Oil Wells.—Irion Oil Co. has been incorporated, with \$10,000 capital, by S. W. Pipkin, W. L. Douglass, Beauregard Pipkin, G. W. Kidd and others to operate oil wells.

Dalhart—Ice and Electric-light Plant.—Dalhart Ice & Electric Co. has been incorporated, with \$1000 capital by W. H. Wolff, C. G. Foulks and Coney C. Slaughter, to operate ice and electric-light plant.

Dallas—Roads and Bridges.—Dallas county will vote November 8 on the issuance of \$500,000 of bonds for constructing and building roads and bridges in Dallas county; Ed. S. Lauderdale, county judge.

Dallas—Coal-mining and Briquette Plant.—A company has been organized to mine coal and manufacture it into small bricks for fuel. H. H. Havenkott can be addressed.\*

Dallas—Electric-light Plant.—City will construct electric-light plant with a capacity of from 500 to 1000 street arc lights, and plans, specifications and sealed proposals will be received until December 1. Address City Secretary E. T. Winslett.\*

El Paso—Silk Mill.—The Chamber of Commerce is negotiating with Belgian manufacturers relative to establishing a plant for manufacturing artificial silk.

El Paso—Water-works.—Charles Davis has secured franchise (previously reported as having been applied for) to construct water-works, and it is stated will organize company to operate the plant. A reservoir with a capacity of 6,000,000 gallons of water will be

erected and 2,300,000 gallons of water will be furnished the city daily. The water will be piped from the Sacramento mountains.

Harwood—Iron Mines.—It is reported that M. S. Blackburn of Harwood and H. Masteron of Houston, Texas, are arranging for the development of iron mines at Harwood.

Hopkinsville—Polishing Powder.—The Lusterine Mining & Polish Co., reported in this column October 26, is of Hopkinsville, Ky., not Texas. (See item under Hopkinsville, Ky.)

Houston—Gas Works.—Texas Gas Co. has been incorporated, with \$100,000 capital, by F. D. Lyon, F. A. Peters and James Beldam.

Lamont—Lumber Company.—D. Williams, E. M. Ward of Lamont and F. L. Williams of Houston, Texas, have incorporated the Lamont Lumber Co., with \$50,000 capital.

Liberty—Oil Wells.—Chartered: Sulphur Springs Oil Co., with \$2500 capital, to prospect for oil and other minerals; incorporators, C. F. Stevens, W. C. Moore, E. B. Pickett and others.

Nacogdoches—Water-works.—City contemplates issuing \$50,000 of bonds for constructing water-works. Address The Mayor.

Seguin—Cotton Compress.—Louis Hirsch, J. M. Abbott and others have incorporated the Hirsch Compress Co. to operate cotton compress. Site has been purchased and building will be erected at once.

Seguin—Flour Mill.—Seguin Milling & Power Co. contemplates enlarging its mill at Erskine Falls and doubling the capacity.

Temple—Mercantile.—R. L. Barclay and associates have incorporated the Barclay-Besonette Company, with \$20,000 capital.

Tolar—Lumber Company.—Chartered: Tolar Lumber Co., with \$10,000 capital, by F. C. Fortner, Frank Wyly, Sam Browning and associates.

Waco—Water-works.—The city will not construct water-works plant for which \$306,000 in bonds was previously reported voted, but the money has been expended for purchasing the plant of the Bell Water Co.

Wallisville—Ginnery.—A \$10,000 plant is being established for ginning moss with capacity of 10 tons, and Henry Wiltten is promoting the enterprise.

#### VIRGINIA.

Alexandria—Water-works Improvements.—Alexandria Water-Works Co. contemplates improving plant.

Berkeley—Concrete Building-block Factory.—W. J. Sterling of Portsmouth, Va., and A. S. J. Gammon of Norfolk, Va., have formed the Sterling Concrete & Construction Co. to establish plant for the manufacture of concrete building blocks in the form of artificial stone. A machine for manufacturing it in all colors, with a capacity of 30 blocks an hour, and invented by Mr. Sterling, will be installed.

Fredericksburg—Gas Plant.—City contemplates building gas plant at a cost of \$25,000. Address The Mayor.

Gaines Mill (P. O. Richmond)—Grist Mill. W. B. Woodson of Richmond has purchased, will improve and operate the Gaines Mill.

Lewistown—Grist and Feed Mill.—Lewis A. Boggs, reported last week as building grist and feed mill, is erecting mill building 18x31 feet, and will equip with machinery with a daily capacity of 400 bushels. A saw-mill has just been completed, and Mr. Boggs will install next spring a planer, matcher and molder.

Norfolk—Real Estate.—Board of Trade Building Corporation has been incorporated, with \$100,000 capital. J. W. Perry is president; Abbott Morris, secretary, and W. H. Murphy, Jr., treasurer.

Norfolk—Lumber Manufacturing.—Incorporated: Truckers' Manufacturing Co., with W. C. L. Williams, president; Cyrus E. Scott, vice-president; W. C. Cobb, secretary-treasurer, and W. C. Lynch, general manager; capital \$10,000.

Norfolk—Realty Company.—Consolidated Realty Corporation has been incorporated, with \$100,000 capital. O. H. Suck of St. Mary's, W. Va., is president; B. F. Thompson of Clarksburg, W. Va., vice-president; S. H. Bowman of Norfolk, secretary, and C. I. Zirkle of Philippi, W. Va., treasurer.

Pulaski—Iron Pyrites Mines, Furnaces, etc. The Pulaski Mining Co. has been chartered, with a capital stock of \$500,000, for the purpose of mining and treating iron pyrites. William H. Nichols of New York, president of the General Chemical Co. of that city, is president; Edwin Wigglesworth, vice-president, and W. G. Eberhardt, superintendent. The new company has purchased 30 acres of pyrites lands (where experimental work has been in progress for some time) for development, and will, it is reported, build 100 Here-



schoff furnaces. Twelve furnaces are now in course of erection.

Richmond—Tobacco Factory.—R. A. Patterson Tobacco Co. will rebuild factory No. 2, reported burned last week at a loss of \$100,000.

Roanoke—Packing Plant.—Reports state that R. B. Griggs will establish pork-packing plant, and that the machinery is now being installed.

Skipwith—Cultivator Plant.—Willis Cultivator Co. will erect building 24x60 feet and install machinery for manufacturing cultivators with a daily capacity of 25.\*

#### WEST VIRGINIA.

Charleston—Fuel Company.—Kanawha Fuel Co. has increased capital from \$150,000 to \$200,000.

Davis—Lumber Manufacturing.—Thompson Lumber Co. has incorporated, with \$10,000 capital, to manufacture lumber; incorporators, A. Thompson, J. F. Thompson, J. Elton Hall and associates.

Grafton—Coal Mines.—It is reported that Beckwith & McGrath of Cleveland, Ohio, have purchased the property of the Sandy Creek Coal Co., which will be extensively operated in connection with the holdings they already have in the Tygarts valley.

Grafton—Coal-mining.—Mohawk Smokeless Coal Co. is arranging for the development of 2500 acres of coal land in Tygarts valley, recently purchased, and mines are now being equipped.

Huntington—Commission Company.—S. A. Drummond, W. E. Drummond, C. W. Stuart, Ernest Hayne and H. T. Lovett have incorporated the Drummond-Stuart Company, with \$25,000 capital.

Milton—Telephone System.—Upland Telephone Co. has been organized by Dr. J. H. Rowsey, June Hereford, D. L. Irwin, G. L. Woody and associates to construct telephone system from Upland to Hamlin via Milton.

Simpson—Power-house, Storehouse, Dwellings, etc.—McIver & Piel, Builders' Exchange Building, 2 East Lexington street, Baltimore, Md., have contract to erect power-house, storehouse, dwellings, etc., for the Maryland Coal Co., Lonaconing, Md., after plans by John S. Siebert of Cumberland, Md. About \$60,000 will be invested.

#### INDIAN TERRITORY.

Checotah—Grain Elevator.—It is reported that the Midland Elevator Co. will establish elevator with a daily capacity of 5000 bushels.

Muskogee—Gas Plant.—H. M. Bylesley & Co., New York Life Building, Chicago, Ill., are engineers in charge of gas plant being constructed at Muskogee.

Pauls Valley—Cotton Compress.—Pauls Valley Compress & Storage Co. has been organized, with \$30,000 capital, to erect cotton compress; incorporators, L. H. Love, R. J. Williams, J. N. Dodson of Ardmore, I. T., and associates.

#### OKLAHOMA TERRITORY.

Blackwell—Sewerage System.—City council has been petitioned for franchise to construct sewerage system. Address The Mayor.

El Reno—Flour Mill.—Canadian County Mill & Elevator Co. will erect brick building and equip as flour mill with a daily capacity of 1000 barrels.

Enid—Townsites.—Coldwater Townsite Co. has been incorporated, with \$50,000 capital, by G. F. Corwin, J. J. Cunningham, John Overholt and others.

Erick—Telephone System.—City has granted franchise to L. M. Brooks for the construction of telephone system.

Lawton—Ice Plant.—Chartered: Eagle Ice & Storage Co. of Lawton and Emporia, Kan., to erect \$30,000 ice plant at Lawton.

Oklahoma City—Construction Company.—A. H. Allison, J. C. Howe and M. E. Allison have incorporated the Allison Cream Co., with \$20,000 capital, to build creameries, ice-cream factories and cold-storage warehouses.

Ringwood—Telephone System.—Star Company has been organized, with \$10,000 capital, to construct and operate telephone system.

Shawnee—Brewery.—Westner Brewing Co. has had plans prepared for the erection of brewery.

Shawnee—Sewerage.—City will vote in November on the proposed issuance of \$75,000 of bonds for the construction of sewerage system. Address The Mayor.

Shawnee—Flour Mill.—Thomas & Thomas of Stillwater, O. T., have made a proposition to the Commercial Club to establish 125-barrel flour mill.

Temple—Furniture Company.—Incorporated: Jenkins-Christian Furniture Co.,

with \$2000 capital, by Joseph A. Fudge, G. M. Jenkins and others.

Woodward—Water-works.—City will vote on issuance of \$50,000 of bonds for the construction of proposed water-works. Address The Mayor.

#### BURNED.

Atlanta, Ga.—Atlanta Ice & Coal Co.'s storage plant.

Bartow, Fla.—Bartow ice plant, owned by E. W. Codrington; loss \$8000.

Bay St. Louis, Miss.—Mrs. Kate Edwards & Sons' saw-mill; loss \$10,000.

Belington, W. Va.—Coal & Coke Railway Co.'s shops; loss \$18,000; W. H. Bower, general manager, Elkins, W. Va.

Brushy Creek, Texas.—Walter Rhodes' cotton gin; loss \$1000.

Cavins (P. O. Woodruff), S. C.—Alexander Bros.' cotton gin; loss \$3000.

Charleston, W. Va.—Kanawha Hotel damaged \$50,000.

Clarksdale, Miss.—Commercial Hotel; loss \$5450.

Columbia, Miss.—B. L. Anderson's dry-kiln; loss \$500.

Cranberry Station, Md.—A. S. Burkholder's distillery; loss \$700.

Davisboro, Ga.—W. J. Henderson's cotton gin; loss \$7000.

Ellaville, Ga.—Wall & Sellers' cotton gin.

Ellenton, S. C.—H. M. Cassel's cotton gin; loss \$15,000.

Elmina, Texas.—Walker County Lumber Co.'s dry-kiln.

Enon, Miss.—W. Guy's cotton gin and mill.

Fredonia, Ala.—M. V. Maley's cotton gin; loss \$300.

Garden Valley, Ga.—Ricks Bros.' saw-mill and lumber-yard; loss \$1500.

Glendale, Texas.—Lusk & Lusk's cotton gin; loss \$4500.

Gladewater, Texas.—C. W. Lawrence and Jack O'Byrne's cotton gin; loss \$2500.

Gloster, Miss.—Gloster Oil Co.'s cotton gin; loss \$5000.

Hagerstown, Md.—Hess & Co.'s carriage factory.

Hamburg, La.—Frank M. Pavey's cotton gin; loss \$7000.

Hampton, Va.—Hampton Normal and Agricultural Institute's barn and slaughterhouse; loss \$30,000.

Harms, Tenn.—R. A. Ables' cotton gin; loss about \$10,000.

Hillsboro, Mo.—Mrs. E. Vollmar's store and hotel building.

Johnston, S. C.—Mark Toney's cotton gin; loss \$2500.

La Grange, Ga.—Cotton gin and seedhouse of the La Grange Mills; loss \$75,000.

Lake City, Ark.—Lake City Supply Co.'s cotton gin, loss \$10,000; Jonesboro, Lake City & Eastern Railroad Co.'s depot, loss \$500; A. J. Kerfoot, Jonesboro, Ark., is general manager.

Lake City, Miss.—Will Hardwick's cotton gin; loss \$750.

Lancaster, Texas.—Trinity Cotton Oil Co.'s (Dallas, Texas) cotton gin; loss \$20,000.

Lewisburg, Tenn.—American Lead Pencil Co.'s factory; loss about \$75,000.

Lincolnton, N. C.—W. W. Motz's woodwork-ing plant.

Luttrell, Tenn.—Southern Railway depot; G. W. Lum, engineer bridges and buildings, Washington, D. C.

Madison, Fla.—J. B. Thomas' cotton gin; loss \$5000.

Mobile, Ala.—Mobile Lumber Co.'s saw-mill.

Monroe, La.—Buildings of Planters' Oil Mill; loss \$15,000.

Paducah, Ky.—E. Renkopf & Co.'s harness and saddle factory; loss \$50,000.

Pulaski, Tenn.—Martin Female College, Dr. B. F. Haynes, president; loss \$75,000.

Quitman, Ga.—J. G. Stanley's barn, cotton gin and wagon shed; loss \$2000.

Reidville, S. C.—A. W. Cox's cotton gin; loss \$5000.

Riverside, Ky.—W. J. Fell's saw-mill; loss \$5000. Address, Pittsburg, Pa.

Rocky Mount, N. C.—W. R. Cox's cotton gin; loss \$10,000.

Summit, Miss.—R. M. Carruth's cotton gin; loss \$5000.

Terrell, N. C.—R. E. Gabriel's cotton gin; loss \$1500.

Waverly, Tenn.—Presbyterian church; loss \$5000.

Wills Point, Texas.—Van Zandt County National Bank; Wright Bros.' grocery store;

Finney & Swann's drug store; J. W. Campbell Building.

Yazoo City, Miss.—Yazoo Banana Co.'s warehouse, South Main street; D. L. Roberts' livery stable.

#### BUILDING NOTES.

\* Means machinery, proposals or supplies are wanted, particulars of which will be found under head of "Machinery, Proposals and Supplies Wanted."

Albertville, Ala.—Bank Building.—Bank of Albertville is inviting bids for the erection of brick bank building 25x60 feet, costing about \$2500, previously reported.

Athens, Ga.—College Building.—Sealed proposals will be received until October 29 by the University of Georgia for the erection of three-story brick building 67x78 feet on the campus, in accordance with plans and specifications, which may be seen at the office of C. M. Strahan, architect, Athens, Ga. Certified check for \$500 must accompany each bid. Usual rights reserved.

Bartow, Fla.—Hotel.—Bartow Hotel Co. will erect \$15,000 hotel. Address Wilson & Wilson.

Birmingham, Ala.—Store Building.—W. S. Brown will erect four-story brick store building to cost \$40,000.

Birmingham, Ala.—Residence.—W. H. Graves will erect two-story frame dwelling to cost \$14,000.

Braidentown, Fla.—Store Building.—H. W. Fuller will erect two-story brick and stone store building.

Bristol, Va.—Tenn.—Dwelling.—Adam Bros. & Co. are erecting residence on Mary street.

Bristol, Va.—Tenn.—Warehouse.—Sparger Mill Co. is erecting warehouse 36x60 feet.

Brookhaven, Miss.—Office Building.—L. H. Baggett will erect brick office building.

Brookhaven, Miss.—Business Building.—Mrs. Adah S. Proby of Natchez, Miss., will erect two-story brick building 75x100 feet.

Cleo, O. T.—School Building.—Woods county will vote in November on the issuance of \$40,000 of bonds for the erection of county school building. Address County Commissioners.

Clifton Forge, Va.—Store and Bank Building.—J. C. Carpenter is erecting three-story store and bank building 100x75 feet on Main street.

Columbia, Mo.—Gymnasium.—Walter Williams, chairman executive board of the Missouri University, will shortly let contract for the erection of proposed \$80,000 gymnasium.

Corsicana, Texas.—Association Building.—Young Men's Christian Association contemplates erecting building.

Dallas, Texas.—Sanitarium.—Plans have been completed and work will begin at once on the erection of proposed \$100,000 Baptist Memorial Sanitarium. Dr. R. C. Buckner is president building committee.

Dublin, Ga.—Store Building.—A. F. Pickett has contract to erect Charles W. Brantley's proposed two-story brick, iron and stone store building 82x100 feet. George C. Thompson prepared the plans.

El Paso, Texas.—Depot.—Frank Powers has contract to erect proposed depot for the Union Depot Co. after plans by D. H. Burnham & Co., Chicago, Ill.

El Paso, Texas.—Association Building.—A building for the Young Men's Christian Association costing \$50,000 is being considered.

Enid, O. T.—School Building.—T. J. Beasley has contract to erect proposed \$13,000 school building.

Fayetteville, N. C.—Church.—First Baptist Church, J. J. Hall, pastor, contemplates erecting edifice.

Florence, S. C.—Church.—Silas Bounds has contract to erect \$20,000 edifice for the Presbyterian Church, previously reported. C. C. Wilson, Columbia, S. C., prepared the plans.

Florence, S. C.—Courthouse and Postoffice. King Lumber Co., Charlottesville, Va., has contract to erect proposed \$100,000 United States courthouse and postoffice. T. R. Warren of Lynchburg, Va., and J. R. Moore of Newport News, Va., were erroneously reported last week as having the contract. Subcontracts have been let to these parties.

Fortress Monroe, Va.—Gymnasium and Post Exchange.—Mankin Construction Co. of Richmond, Va., has contract to erect gymnasium and post exchange buildings, previously reported, to be two stories, of brick, and cost about \$36,000.

Fort Myers, Fla.—Hotel.—Reports state that Dr. C. A. Todd will erect hotel.

Fort Myers, Fla.—Store Building.—Mathe-

son & Smith will erect \$20,000 brick and stone store building.

Frankfort, Ky.—Capitol Building.—Frank M. Andrews has completed plans for proposed capitol building.

Gadsden, Ala.—City Hall.—Bids will be received until November 10 for the erection of proposed \$25,000 city hall after plans by A. D. Simpson. Address Mayor Campbell.

Gainesville, Ga.—Sanitarium.—Incorporated: North Georgia Sanitarium by A. J. Warner, W. W. Murray, W. A. Carlisle, W. H. Slack, W. F. Huntley and D. S. Greenleaf, with \$150,000 capital and privilege of increasing to \$500,000. Plans are being prepared by John Marriott, Delaware, Ohio, for the erection of proposed sanitarium.

Gainesville, Ga.—Hotel.—A. J. Warner, J. F. Moore, W. H. Slack, D. S. Greenleaf, G. M. Merrick and H. H. Dean have incorporated the Chattahoochee Park Hotel, with \$100,000 capital, to erect hotel previously reported. John Marriott, Delaware, Ohio, has been engaged to prepare the plans. Electricity will be used for light, heat and power.

Georgetown, S. C.—Postoffice and Custom-house.—James Knox Taylor, supervising architect, Treasury Department, Washington, D. C., will open bids November 22 for the construction, complete, of the United States postoffice and custom-house, Georgetown, in accordance with plans and specifications, which may be had at office of supervising architect, or at the office of postmaster, Georgetown, at the discretion of the supervising architect.

Germantown, Md.—Store Building and Stable.—P. E. Waters is erecting store building; also building an addition to livery stable; T. & C. Groomes, architects.

Grafton, W. Va.—Roundhouse.—Patrick Farrell, Cincinnati, Ohio, has contract to erect proposed 10-stall roundhouse for the Baltimore & Ohio Railroad Co. at a cost of \$40,000.

Guthrie, O. T.—Business Building.—Chas. McNulty will erect \$5000 business building.

Hattiesburg, Miss.—Business Block.—Shelby Myer has purchased site on which to erect \$10,000 brick business block.

Huntington, W. Va.—Dr. A. K. Kessler, previously reported to erect hospital, has let contract for building to G. W. Vredenburg of Richmond, W. Va.; structure to be three stories, 160x104 feet, constructed of hollow concrete blocks, equipped with natural gas and hot-water heating plant, gas and electric lights, etc., and cost \$80,000.

Jackson, Miss.—Bank and Office Building.—F. J. McGraw has contract at \$46,844 for the erection of the Merchants' Bank's proposed six-story bank and office building.

Jackson, Miss.—Business Building.—Ludersbach Plumbing Co., L. F. Ludersbach, president, will erect two-story brick building on lot recently purchased.

Jackson, Miss.—Institution Buildings.—I. C. Garber has contract at \$56,546.50 for the erection of buildings for the Deaf and Dumb Institute previously reported. Contract for heating was awarded to F. A. Clegg at \$5648.

Johnson City, Tenn.—Memorial Hall.—John G. Unkefer has contract at \$59,185 for the erection of proposed memorial hall at the Mountain Branch, N. H. D. V. S., near Johnson City.

Knoxville, Tenn.—Parsonage.—Congregation of the Third Baptist Church contemplates erecting parsonage, and Dr. C. C. De Armond, Alex. Giffin and James G. Johnson have been appointed building committee.

La Porte, Texas.—Theater, Pier, etc.—Gulf Coast Resort Co. is making arrangements to locate a resort at a point on Galveston bay between La Porte and Seabrook. A pier extending 200 feet into the bay will be built, bathhouse of 250 rooms and theater with a seating capacity of 1200. About \$40,000 will be expended. H. E. Wallace is preparing plans for the several buildings.

Lawton, O. T.—City Hall.—Plans and specifications are being prepared for \$25,000 city hall for which site was reported last week as having been secured, and bids for construction will shortly be asked. Address W. M. Turner.

Louisville, Ky.—Armory Building.—Plans by Brinton B. Davis, architect, Paducah, Ky., have been accepted by the fiscal court for armory previously reported to be erected; building to be entirely fireproof, of steel, stone and brick, with fireproof partitions, and will have a seating capacity of about 15,000. Structure will cost not more than \$35,000.

Magnolia, Miss.—School Building.—Town has purchased site on which to erect school building. Address Town Clerk.

Markham, Texas.—School Building.—A. A. Moore, president Markham Independent School District, will open bids October 25

for the construction of school building of wood. Plans and specifications can be seen at the office of M. H. Lopez, Markham. Certified check for \$100, made payable to the president, must accompany each bid. Usual rights reserved.

Maxton, N. C.—Church.—Presbyterian congregation is arranging for the erection of \$8000 edifice. Address The Pastor.

Mineola, Texas.—Church.—Sealed bids will be received until November 5 for the erection of a brick building for the Methodist Episcopal Church, South. Plans and specifications on file in office of B. A. Stafford, Mineola, and at office of Taylor & Parr, architects, Greenville, Texas. Certified check for \$100 must accompany bid.

Morgantown, W. Va.—Freight Shed and Platform.—Baltimore & Ohio Railroad Co. has let contract to Holbert & Spedden, Fairmont, W. Va., for building extension to freight shed and platform to cost about \$10,000.

Nag Head, N. C.—Hotel.—J. T. Land is preparing plans for \$35,000 hotel previously reported. A stock company will be organized to erect and operate it.

Nashville, Tenn.—Depot.—Nashville, Chattanooga & St. Louis Railway has let contract to C. N. Rives for rebuilding freight depot reported burned last week. Hunter McDonald is chief engineer.

Nashville, Tenn.—Dwelling.—W. T. Young has had plans and specifications prepared by Thompson & Ferguson for the erection of two-story residence to cost \$5000.

Nashville, Tenn.—Hospital.—William Stackman has contract at \$4577 for erection of proposed smallpox hospital.

New Orleans, La.—Hotel.—Urbana Gonzales, proprietor Pasaje Hotel, Havana, Cuba, contemplates erecting hotel.

Norfolk, Va.—Officers' Quarters.—Sealed proposals will be received until November 22 at the bureau of supplies and accounts, Navy Department, Washington, D. C., for the construction of two officers' quarters at the United States Naval Hospital, Norfolk. Drawings can be obtained upon application to the architects, Wood, Donn & Deming, 808 17th street, Washington, D. C., upon deposit of \$5. Copies of specifications can be obtained by applying to naval hospital, Norfolk, or to bureau. Blank proposals will be furnished upon application to navy pay office, Norfolk, or to bureau; H. T. B. Harris, paymaster-general, United States Navy.

Norfolk, Va.—Lodge Building.—John W. Jones has contract to erect proposed three-story Masonic Temple, after plans by C. J. Woodsend of South Norfolk, on site recently purchased.

Norman, O. T.—Courthouse.—Norman county contemplates erecting \$40,000 courthouse. Address Judge Irwin.

Ocala, Fla.—Courthouse.—Plans by H. J. Klutho of Jacksonville, Fla., have been accepted for proposed improvements to Marion county's courthouse. About \$45,000 will be expended.

Oklahoma City, O. T.—Fire Stations.—City will shortly let contract for building two fire stations. Address The Mayor.

Oklahoma City, O. T.—Simmons & Ross have contract to erect proposed \$7000 edifice for the United Presbyterians.

Oklahoma City, O. T.—Apartment-house.—Cross Construction Co. has contract to erect proposed apartment-house for J. A. Smith; structure to be three stories, 50x50 feet, and cost \$15,000.

Oklahoma City, O. T.—Business Building.—G. B. Stone and W. F. Pratt are erecting three-story brick building, 50x140 feet, for which G. W. Van Meter was reported last week as preparing plans; cost \$25,000. Contract for erection will be let about October 30.

Richmond, Va.—Dwelling.—W. H. Richardson has contract to erect \$8000 residence previously reported for Florence Buford Richardson; structure to be of stone and brick, ordinary construction, hot-water heating, electric lights, etc.

Stillwater, O. T.—Business Building.—Milton James will erect two-story brick business building to cost \$5000.

Stillwater, O. T.—Courthouse.—Payne county contemplates issuing bonds for the construction of courthouse. Address County Judge.

St. Louis, Mo.—Apartment-house.—Willard Realty Co. will erect three-story brick apartment-house to cost \$60,000.

Taylor, Texas.—Dwelling.—Hugh Burns has had plans prepared for the erection of residence to cost \$12,000.

Temple, Texas.—Business Block.—M. Lasker of Galveston, Texas, will rebuild business block recently burned.

Union Point, Ga.—Bank Building.—H. C. Hilliard has contract to erect proposed bank building for the Citizens' Bank of Union Point.

Waycross, Ga.—Hospital.—Waycross Hospital Association has been organized with J. W. Strickland, president, and Dr. Marvin Johnson, secretary, to erect hospital on site recently acquired.

Wilmington, N. C.—Office Building.—Carolina Insurance Co. has purchased site at \$10,500 on which to erect brick office building next fall.

Wilburton, I. T.—School Building.—J. T. Rogers of Tishomingo, I. T., has contract to erect proposed \$10,000 brick and stone school building.

Yazoo City, Miss.—Church.—Bids are being invited by the Building Committee of Trinity Episcopal Church for the erection of brick edifice. For particulars address C. H. Clark, chairman.

## RAILROAD CONSTRUCTION.

### Railways.

Arkansas City, Kan.—A charter has been granted in Oklahoma to the Kansas-Oklahoma Interurban Railway Co. of Arkansas City; capital \$1,000,000. The line is to be built to connect Arkansas City, Winfield and Gueda Springs, Kan., and Chillico, O. T. The incorporators are L. H. P. Northup, A. J. Hunt, Thomas Baird, Charles L. Brown and N. D. Sanders, all of Arkansas City; W. H. Sommerer and W. C. Robinson of Winfield, Kan., and Charles A. Johnson of Newkirk.

Bonham, Texas.—E. D. Steger, president of the Denison, Bonham & New Orleans Railroad, is reported as saying the plan to build a railroad from Galveston, Texas, to Duluth, Minn., has been financed, the road to be completed in five years; also that the Interstate Railway Co. and the American Southwestern Trust Co. of Kansas City, Mo., and Paris, France, organized some time ago, were to handle the proposition. He is president of both. Paris capitalists are interested. The Denison, Bonham & New Orleans Railroad, 29 miles long, may be acquired.

Brookhaven, Miss.—Theodore Hemingway of Memphis, who is grading the extension of the Illinois Central from Brookhaven to Monticello, Miss., about 40 miles, is reported as saying that the grading has been finished to a point within one mile of Monticello, and tracklaying is following the grading closely. It is expected that the line will be operated by November 15.

Buena Vista, Va.—The Buena Vista Extract Co. is reported to have made a survey for its railroad from Vesuvius 13 miles through Tie River gap to Crab Tree in Nelson county.

Cartersville, Ga.—The Alabama Construction Co. of Anniston, Ala., D. B. Lacey, president, is reported to have secured a subcontract for eight miles of grading on the extension of the Atlanta, Knoxville & Northern between Cartersville and Wetmore, Tenn. They will have 200 men, 126 mules and two large steam shovels.

Chicago, Ill.—The Illinois Central Railroad is reported to be planning for an extension from Kensington, Ill., via Indianapolis to Louisville, Ky. A. S. Baldwin is engineer of construction. He writes the Manufacturers' Record that the above report arose from the fact that the Illinois Central lately incorporated the Kensington & Eastern Railroad to build from a connection in Chicago to the city limits in the neighborhood of Hammond, Ind., a distance of about seven miles; this to reach a number of local industries.

Chicago, Ill.—The Chicago, Rock Island & Pacific Railway will, it is reported, spend over \$2,000,000 for construction work in improving the roadbed between St. Joseph, Mo., and Davenport, Iowa, and St. Joseph and Topeka, Kan. Work is to begin immediately; W. L. Darling, chief engineer at Chicago.

Dallas, Texas.—Mr. B. S. Wathen, chief engineer Texas & Pacific Railway, writes the Manufacturers' Record that it has not yet been determined whether an extension will be built from Simmesport to Melville, La., about 20 miles.

Enid, O. T.—E. L. Peckham, vice-president and general manager of the Denver, Enid & Gulf Railroad, is quoted as saying that the grading under way on the northern extension is on the first section of 14 miles. This extension, from Enid, O. T., to Kiowa, Kan., will be 60 miles long, 50 miles being in Oklahoma. The Oklahoma Construction Co. is the contractor.

Gainesville, Ga.—Plans are under consideration to build a railroad from Gainesville to Rome, about 75 miles. Mayor Howard Thomson, John A. Smith and others are reported to be interested. The Southern Railway Co.

is said to be behind the project; W. H. Wells, engineer of construction, Washington, D. C.

Greenwood, Miss.—The preliminary survey for the first section of eight miles of the Greenwood Electric Railway has been finished, and it is expected to put contractors at work not later than January 1.

Jackson, Miss.—The Jackson Board of Trade is making an effort to secure a railroad from Shuqualak, on the Mobile & Ohio Railroad in Noxubee county, to Jackson, about 110 miles. The Southern Railway, of which W. H. Wells, Washington, D. C., is engineer of construction, may build the line.

Keyser, W. Va.—The Keyser, Burlington & Petersburg Electric Railroad Co. of Keyser has been granted a charter to build an electric railroad from Keyser, in Mineral county, to Petersburg, Grant county, via Burlington. The incorporators are Archibald C. Williams, Abraham P. Gross, T. R. Palmer, John S. Siebert, B. W. Wright, Urus G. Carl, Cumberland, Md. The line will be about 35 miles long.

Logan, W. Va.—Rapid tracklaying is reported on the Island Creek branch of the Guyandotte Valley Railroad from Logan to the mines of the United States Coal & Oil Co. at Holden.

Louisville, Ky.—It is reported that the Louisville & Nashville Railroad will revise its line between Corbin, Ky., and Jellico, Tenn., about 33 miles, and also, it is stated, will build a practically new line between Corbin and Livingston, this to be used in connection with the Knoxville, LaFollette & Jellico Railroad. R. Montfort is chief engineer at Louisville. He is quoted as partly confirming the report.

Louisville, Ky.—New York capitalists are reported to be backing a plan to build a railroad about 50 miles long from a connection with the Louisville & Nashville Railroad at Providence, Ky., to Shawneetown, Ill., where it will connect with a branch of the same road. R. Montfort, chief engineer of the Louisville & Nashville at Louisville, may be able to give information.

Mobile, Ala.—The Mobile, Jackson & Kansas City Railroad will, it is reported, do considerable improvement work to the existing grade. Trestles will be filled and the roadbed graveled. The Mobile terminals will also be improved. A. N. Bullitt is chief engineer.

Muskogee, I. T.—Secretary Duer of the Muskogee Union Railroad, lately reincorporated as the Missouri, Oklahoma & Gulf, is quoted as saying that construction will be resumed immediately at Deep Fork, I. T., about 40 miles south of Muskogee, to which point the grade is complete. The line will go via Whitesboro, Texas, to the Gulf of Mexico.

Natchez, Miss.—The Natchez & Gulf Railroad has been incorporated to build a line from Natchez to Gulfport, about 160 miles, passing through the counties of Adams, Franklin, Pike, Marion, Pearl River and Harrison. The incorporators are A. G. Campbell, J. N. Carpenter, J. W. Lambert and others.

Newton, Miss.—The Worthington Construction Co. of Birmingham, Ala., has, it is reported, nearly completed the grading on the Mobile, Jackson & Kansas City Railroad between Newton and Philadelphia, Miss., between 35 and 40 miles, and tracklaying, which has reached Louisville, Miss., is also in progress north and south from Ackerman, Miss.

Oklahoma City, O. T.—It is reported that the Oklahoma & Texas Railway Co. (M., K. & T. system) proposes to build an extension from Oklahoma City southwest. F. N. Finney of Oklahoma City is president.

Orange, Texas.—C. W. Hole, general manager of the Orange & Northwestern Railroad, is reported as saying that arrangements have been made which insures the extension from Buna; also that a preliminary route for an extension from Buna for a distance of 400 miles has been made, but he declines to state the proposed destination of the line. H. L. Montandon is chief engineer.

Plymouth, W. Va.—The Kanawha & Eastern Railway Co. has been chartered to build a line from Plymouth to the mines of the Alpha Coal Mining Co., three miles from the mouth of Iquano creek. The incorporators are C. W. Smith and S. R. Ireland, Pittsburgh, Pa.; P. W. Butler, Plymouth, W. Va.; L. Prichard and H. A. Robson of Charleston, W. Va.

Quitman, Ga.—It is reported that an electric railway about one and one-half miles long will be built by the town from the South Georgia railway station via Quitman to Pine Park.

Raleigh, N. C.—The Raleigh & Pamlico Sound Railway has now, it is reported, 10 miles graded, and tracklaying is rapidly progressing.

Savannah, Ga.—It is announced that the Savannah, Statesboro & Northern Railway Co. will apply for a charter for a line about 160 miles long to extend from Statesboro via Louisville, Thomaston and Washington to Athens, Ga., going through Bulloch, Emanuel, Burke, Jefferson, Glascock, Warren, Wilkes, Oglethorpe and Clark counties. The incorporators are Cecil Gabbett, president of the Savannah & Statesboro Railway at Statesboro, Ga.; W. H. Lynn of New York city, J. A. Brannen, J. G. Blitch, J. W. Olliff, R. Simmons, W. B. Martin, W. C. Parker, S. C. Groover, S. L. Moore, J. P. Brannen, W. T. Smith, J. H. Donaldson, B. T. Outland and J. S. Franklin of Portal, Ga.

Savannah, Tenn.—The Savannah, Shiloh Park & Corinth Railway Co. has been chartered to build a line from Savannah to Allen's creek, Wayne county, Tennessee, via Savannah and the Shiloh National Park to Corinth, Miss., about 65 miles. The incorporators are E. P. Churchwell, Edgar Cherry, E. D. Patterson, J. J. Williams, H. E. Williams, D. A. Welch, F. H. Wanship, Jeff Ross, Arch Walker, A. J. Williams, J. W. Ross, J. K. Barlow, T. J. Welch and E. W. Ross.

Shreveport, La.—The Louisiana Railway & Navigation Co., according to a report quoting Joseph Lallande, contracting agent, is progressing rapidly with construction on the extension between Port Hudson and Angola, La.

South McAlester, I. T.—Milton J. Smith, chief engineer of the Kansas City, Oklahoma & Houston Railway, is reported as stating that grading is going on from Honey Grove, Texas, to the Red river, 22 miles. Contracts for 84 miles from the Red river to a point on the Choctaw, Oklahoma & Gulf Railroad in the Indian Territory will be let within two months; maximum grades and curves eight-tenths of 1 per cent. and four degrees, respectively; entire line 710 miles, Kansas City to Houston.

St. Louis, Mo.—It is reported that the Frisco system will build a line from Shreveport, La., via Hattiesburg, Miss., to Mobile, Ala., about 300 miles, the road to be named the Mississippi, Louisiana & Texas. About six months ago it was reported that Arthur D. Ritchie and Frederick W. McKinnie, respectively president and secretary at Shreveport, La., were promoting a line under that name.

St. Louis, Mo.—Engineers for the Mobile & Ohio Railroad under J. M. Clark are reported to have completed a survey from a point in Clark county, Mississippi, near Shubuta to Biloxi, Miss. It is expected that the line will be from Florida in Jackson county to Biloxi.

St. Louis, Mo.—Rufus W. Bailey, receiver and manager of the St. Louis, St. Charles & Western Railroad, has applied to the court for permission to put in 17 switches and frogs, 17 switches and 5000 ties.

St. Louis, Mo.—The Missouri Pacific Railway, it is reported, proposes to build a line from Fort Smith, Ark., to Sherman, Texas, about 175 miles. H. Rohwer is chief engineer.

St. Louis, Mo.—The St. Louis & San Francisco Railroad, it is reported, has decided to build the proposed line from Brady to San Antonio, Texas, about 125 miles. J. F. Hinckley is chief engineer, St. Louis, Mo.

St. Louis, Mo.—The Mobile & Ohio Railroad report announces that the Southern Warrior Railway, 15 miles long, was completed during the year to Kellerman, Ala.

Tyler, Texas.—It is again reported that the St. Louis Southwestern Railway will continue the Lufkin & Monterey extension to Beaumont, Texas. M. L. Lynch is chief engineer.

Union, S. C.—The Robert Russell Company is reported to be pushing construction on the extension of the Union & Glenn Springs Railroad to connect with the Seaboard Air Line. There are 50 scrapers and 75 men employed. W. H. Goodson is engineer.

Union Springs, Ala.—Application has been made in Georgia for a charter for the Augusta & Florida Railway Co. to build a line about 60 miles long from Augusta, in Richmond county, to Midville, in Burke county. The petitioners are W. M. Blount of Union Springs, Ala., who is president of the Union Springs & Northern Railway; F. J. Holcombe, A. W. Jones, J. Weale, J. T. Davis and Wm. Stevens of Midville, Ga.; J. I. Davis, Hephzibah, Ga.; D. Crossland, Alken, S. C., and G. R. Coffin and C. C. Howard of Augusta, Ga.

Waynesboro, Ga.—The Waynesboro & Savannah Valley Railroad will, it is reported, apply for a charter to build a line from Waynesboro to Sylvania, Clio and the Savannah river, about 60 miles. Among those reported interested are W. A. Wilkins, Sr., R. C. Neely, Wm. A. Wilkins, Jr., Frank W. Cates, P. L. Corker, Eton E. Chance, F. L. Scales, W. H. Davis, F. L. Brinson, Edwin Fulcher, C.



W. Skinner and George O. Warnock, all of Waynesboro; L. H. Hilton and others of Sylva.

Washington, D. C.—Mayor Kinnear of Tacoma Park, in the suburbs, is reported as saying that Baltimore capitalists are considering the building of an electric railway from a point in Maryland through Tacoma Park to the terminus of one of the city lines on 14th street.

Yellow Pine, Ala.—The E. W. Gates Lumber Co. is reported to have completed a mile of grading and is still pushing work on its railroad to connect with the Mobile & Ohio Railroad. J. E. Cypret is superintendent.

#### Street Railways.

Galveston, Texas.—The Gulf Coast Resort Co. will, it is reported, build an electric railway to its proposed resort on Galveston bay between La Porte and Seabrook. H. E. Wallace, architect, may be able to give information.

Graham, N. C.—The Alamance Street Railway Co. has been incorporated to build and operate street railway anywhere in the State. The incorporators are J. L. Williamson, J. W. Cates and J. W. Menefee.

Hagerstown, Md.—It is reported that the Hagerstown Street Railway Co. will extend its line from Boonsboro to Sharpsburg and the Antietam battlefield, about six miles. W. C. Hepperle is superintendent.

Jackson, Miss.—The Jackson Electric Railway, Light & Power Co. is reported to be preparing plans for two extensions to cost about \$60,000, and work to begin in January next.

Monroe, La.—Mayor A. A. Forsyth has, it is reported, been authorized to employ an engineer to survey for the proposed municipal electric railway, to be about 10 miles long.

Muskogee, I. T.—Construction is reported begun on the Muskogee Traction Co.'s new street-car line. It is proposed to build five miles of track by March 1. H. M. Byllesby & Co., New York Life Building, Chicago, Ill., are engineers for the Traction Company, and will design and build the railway.

Suffolk, Va.—Bids for a franchise for a street railway will be opened on November 22. The Seaboard Traction Co., lately incorporated, is the applicant.

### MACHINERY, PROPOSALS AND SUPPLIES WANTED.

Manufacturers and others in need of machinery of any kind are requested to consult our advertising columns, and if they cannot find just what they wish, if they will send us particulars as to the kind of machinery needed we will make their wants known free of cost, and in this way secure the attention of machinery manufacturers throughout the country. The Manufacturers' Record has received during the week the following particulars as to machinery that is wanted.

Blacksmith Tools.—See "Foundry and Machine-shop Equipment."

Blower Fans.—See "Foundry and Machine-shop Equipment."

Boiler.—See "Engine and Boiler."

Boiler.—Jackson Brick Co., Jackson, Miss., wants 40-horse-power boiler. (See "Brick Machinery.")

Bottles.—Gonos Remedy Co., Rion, S. C., is in the market for bottles.

Brick Machinery.—Jackson Brick Co., Jackson, Miss., wants one dryhouse for 20,000 bricks a day, 40-horse-power boiler, disintegrator with elevator, small steam shovel or dipper for handling clay in pit.

Bridge Construction.—C. H. Peavy, D. A. Beard, Jr., and M. Patton, police jury, Monroe, La., will open bids November 15 for the erection of two steel bridges across Bayou Boeuf.

Briquette Machinery.—H. H. Havenkott, Dallas, Texas, wants information regarding complete system for mining coal and manufacturing into coal briquettes.

Building Equipment and Supplies.—General Supply & Construction Co., 24 State street, New York, N. Y., will let contracts for mill work and ornamental iron.

Building Equipment and Supplies.—Fairhope Improvement Co., Fairhope, Ala., wants prices on plumbing supplies, roofing, outside plaster, wallpaper and wall decorations suitable for cottages, doors, windows, stairs, etc.

Building Equipment and Supplies.—Thomas O'Keefe & Co., Oklahoma City, O. T., wants prices on mill work, structural-iron work and lumber.

Building Materials.—Ball Supply Co., 370 King street, Charleston, S. C., wants prices on building materials.

Building Supplies.—Messrs. R. K. Motishaw & Co., 9 Love lane, Bombay, India, want catalogues, prices, discounts, etc., on American-made enameled and embossed tiles for floors, walls, etc.; also metal ceilings, cornices, borders, etc., rubber mats, mattresses, etc. Send full details as to weights, etc.

Carousel.—See "Merry-Go-Rounds."

Charcoal Furnaces.—W. M. Drennen, Birmingham, Ala., is in the market for eight furnaces such as are used by makers of powder in burning charcoal. He especially wants details regarding a furnace made to hold 600 pounds of wood and with pipe extending from the top through which the extract from the wood is caught.

Coal and Coke.—See "Foundry and Machine-shop Equipment."

Cotton-gin Equipment.—Grovania Oil Co., Grovania, Ga., wants complete outfit for five 80-saw gins.

Cotton-mill Machinery.—J. C. Lanier, Laniers, Ala., wants addresses of makers of textile machinery for spinning linters and low-grade cotton rope, etc.

Crucibles.—See "Foundry and Machine-shop Equipment."

Cupolas.—See "Foundry and Machine-shop Equipment."

Drills.—See "Machine Tools."

Electrical Equipment.—Corinth Opera-House Co., Corinth, Miss., is in the market for a 1000-light direct-current belt-connected or direct-connected dynamo, slow speed, with engine of sufficient capacity to run same.

Electrical Hammers, etc.—See "Machine Tools."

Electrical-heating Equipment.—W. W. Alfred, architect, Pensacola, Fla., wants addresses of firms handling electrical-heating furnaces.

Electric-light Plant.—City Secretary E. T. Winslett, Dallas, Texas, will receive plans, specifications and sealed bids until December 1 for the erection of electric-light plant with a capacity of from 500 to 1000 street arc lights. Usual rights reserved.

Engine and Boiler.—The Bacon & Collins Supply Co., Albany, Ga., wants 25-horse-power steam engine and 60-horse-power boiler. (See "Foundry and Machine-shop Equipment.")

Fans.—The American Manufacturers' Agency, P. O. Box 589, Alexandria, Egypt, wants column and bracket fans similar to regular electric fans, but driven by water-power.

Fire Extinguishers.—Messrs. Van der Linde & Teves, Semarang, Soerabaya, Amsterdam, Holland, want prices on chemical fire extinguishers packed in a seaworthy manner for export to Java and delivered f. o. b. New York, cash payment. They want the extinguishers consisting of iron tube filled with fire-extinguishing chemical, provided with a hook to hang on wall. Send full description and illustrations.

Foundry and Machine-shop Equipment.—The Bacon & Collins Supply Co., Albany, Ga., wants one 66-inch double-head wheel lathe for turning driving wheels and boring large pulleys; one 36-inch engine lathe to swing eight feet between centers; one 24-inch engine lathe to swing six feet between centers; one 18-inch engine lathe to swing 10 feet between centers—all the above lathes, except wheel lathe, to be fitted with chuck; a complete assortment of Armstrong tools for the 36-inch, 24-inch and 18-inch lathes; one set of dogs for each of the above lathes; one 150-ton power wheel press; one 25-inch upright drill press, back-gear, to include drills from one-quarter to one and one-half in thirty-seconds; one No. 1 radial drill, with all necessary tools included; one No. 1 milling machine, with the complete list of cutters and extra tools as described in the catalogue; one 16-inch back-gear shaper, including an assortment of Armstrong tools; one 36-inch double-head planer with 8-foot bed; one steam hammer; one 36-inch boring mill; one pipe machine to cut and thread from one-quarter to six inches, with all necessary dies and cutters, etc.; one bolt machine to cut and thread from one-quarter to two inches; one power back saw or cutting-off saw machine; one wood lathe, 12 feet between centers, including rests and stand and other necessary tools; one scroll saw; one band saw; one buzz planer; one four-ton-capacity cupola and one dozen ladles; two crucibles; one 36-inch blower for cupola; one 24-inch fan for blower in blacksmith shop; all necessary tools to complete blacksmith shop, such as anvils, ham-

mers, tongs, etc.; one carload of pig-iron and a car of coke (car of pig-iron can be divided into No. 1 and No. 2 equally); one carload of blacksmith coal, pulleys, shafting, belting, etc., will have to be purchased after machines arrive; one 25-horse-power steam engine; one 60-horse-power boiler.

Fuel Equipments.—See "Oil Burners."

Foundry Tools.—See "Machine Tools."

Gasholder.—Richmond City Gas Works, W. P. Knowles, superintendent, Richmond, Va., will open bids November 1 for the construction of a four-lift gasholder of 2,000,000 cubic feet capacity. Plans and specifications may be had from Robert W. Hunt & Co., engineers, 66 Broadway, New York, N. Y., upon payment of \$10.

Heating Apparatus.—See "Electrical-heating Equipment."

Iron (Pig).—See "Foundry and Machine-shop Equipment."

Iron.—Willis Cultivator Co., Skipwith, Va., wants prices on  $\frac{1}{2} \times 1\frac{1}{2}$  square-edge iron in carload lots.

Labels.—Gonos Remedy Co., Rion, S. C., is in the market for labels.

Laundry Machinery.—L. S. Ewing, Carthage, N. C., is in the market for machinery for small laundry.

Lumber.—John Ruddle, Navigation Building, Mauch Chunk, Pa., wants cypress timber cut in 44-foot lengths.

Machine Tools.—See "Foundry and Machine-shop Equipment."

Machine Tools.—Van der Linde & Teves, Kellersgracht 382, Amsterdam, Holland, want American-made hydraulic tools, such as hammers, drills, chisels, etc.

Machine Tools.—Rauscher & Anders, Wienstrasse 45, Vienna, Austria, want information regarding American-made electrical hammers for working castings. They are also always interested in other machinery driven by electricity and in novelties that are useful in factories using steam power.

Machine Tools.—Cedar Falls Manufacturing Co., Cedar Falls, N. C., is in the market for a drill press and gear-cutter. State make and lowest price.

Metal-working Machinery.—William J. Baxter, 224 Randolph Building, Memphis, Tenn., wants addresses of firms making a machine for recrimping the Crown stopper and seal after being used.

Merry-Go-Round.—W. H. Herkmer and G. M. Haynes, Lincolnton, N. C., want information relative to steam riding galleries.

Mining Equipment.—See "Railway Equipment."

Mining Equipment.—Mohawk Smokeless Coal Co., 1115-1116 Williamson Building, Cleveland, Ohio, invites bids for the installation of complete coal-mining plant at Stone House, near Grafton, W. Va.

Mining Equipment.—J. N. Baker, Crossville, Tenn., will be in the market for revolving screens, mine cars and other apparatus necessary for mining coal.

Mining Equipment.—See "Briquette Machinery."

Oil Burners.—The Frictionless Metal Co., Richmond, Va., wants to correspond with manufacturers of oil burners relative to changing from coal to oil for fuel.

Oil-mill Equipment.—Grovania Oil Co., Grovania, Ga., wants a two-press oil-mill outfit.

Ornamental Iron.—See "Building Equipment and Supplies."

Plows.—The American Manufacturers' Agency, P. O. Box 589, Alexandria, Egypt, is in the market for steam plows.

Pulleys, Shafting, etc.—See "Foundry and Machine-shop Equipment."

Railway Equipment.—Hughes Creek Coal Co., Roe, W. Va., is in the market for 20 40-ton standard gondola cars; new or second-hand in good condition.

Railway Equipment.—Central Phosphate Co., Mt. Pleasant, Tenn., wants quotations on one-and-one-half, two or three-yard dump cars, second-hand.

Railway Equipment.—Maryland Equipment & Supply Co., 310 St. Paul street, Baltimore, Md., is in the market for 72 tons of 30-pound relaying steel rails with joints; also for second-hand 7x12 36-inch-gauge locomotive; to be delivered at Harrisburg, Pa.

Road Machinery.—Hugh C. Braxton, chairman Street Committee, Staunton, Va., wants addresses of manufacturers of steam road rollers.

Road Machinery.—City of Valdosta, Ga., A. W. Varneado, city clerk, is in the market for a 10 or 12-ton steam roller.

Roofing.—J. P. Hertzog & Son, Spartanburg, S. C., wants bids on composition roof.

Roofing.—See "Building Equipment and Supplies."

Roofing.—Jackson Brick Co., Jackson, Miss., wants composition roofing.

Rubber Goods.—See "Building Supplies."

Saws.—See "Foundry and Machine-shop Equipment."

Spoke Machinery.—Futrell-Hardy Hardware Co., Scotland Neck, N. C., wants to correspond with manufacturers of spoke machinery.

Steam-power-plant Oil Burners.—See "Oil Burners."

Steam Shovel.—See "Brick Machinery."

Street Paving.—Sealed bids will be received by the Mayor, Atlanta, Ga., until November 7 for paving Mitchell street from Whitehall to Madison avenue with asphalt blocks, approximately 4500 square yards, and Madison avenue from Mitchell to Hunter with small granite blocks, approximately 2250 square yards. Specifications furnished on application to R. M. Clayton, city engineer. Usual rights reserved.

Tanks.—D. O'Sullivan, Richmond, Va., is in the market for four or five second-hand upright iron tanks capable of holding 8000 to 15,000 gallons of molasses.

Tiling.—See "Building Supplies."

Water Fans.—See "Fans."

Water-works.—Bond Commissioners, Lakeland, Fla., will open bids October 27 for furnishing material, laying pipe, etc., for water-works, to consist approximately as follows: 600 lineal feet eight-inch pipe, 4450 lineal feet six-inch pipe, 5624 lineal feet four-inch pipe, 30 four-inch fire hydrants, two two-and-one-half-inch hose connections without frost jackets, 15 four-inch valves and boxes, seven six-inch valves and boxes, three eight-inch valves and boxes, two tons special castings. Separate bids will be required covering furnishing of material and laying pipe. Certified check for 5 per cent. of amount of bid must accompany each bid. Usual rights reserved.

Windmills.—George R. Brown, care Little Rock Board of Trade, Little Rock, Ark., wants to correspond with manufacturers of windmills.

Woodworking Machinery.—See "Saws."

Woodworking Machinery.—See "Spoke Machinery."

Woodworking Machinery.—J. P. Smith, Wrightsville, Ga., wants a swing cut-off saw and double emery-wheel stand.

### MEXICO.

Antimony Mines.—Gustavo Roth of Morelia, Michoacan, has begun the development of antimony deposits.

Coal Mines.—Carlos H. Johnson of San Marcial, Sonora, has decided upon arranging for the further development of his coal-mining properties with modern machinery, and it is reported he has gone to New York to contract for the equipment.

Copper Mines.—Luis Fierro of Autlan, Jalisco, has filed claims to copper-bearing lands which he will develop.

Lead and Silver Mining.—Charles W. Curtis of the Valenciana Ranch, Nieves, Zacatecas, has filed claims to lead and silver lands which he proposes to develop.

Malt Factory.—A company has been organized with capital stock of \$300,000 for the purpose of building a malt factory in Mexico. Lic. Domingo Barrios Gomez of 13 Cordobanes street, City of Mexico, is the Mexican manager, and E. S. Ware, secretary of the St. Louis Manufacturers' Association, St. Louis, Mo., is president.

Mining.—The Grub Stake Mining Co. of Lawton, Oklahoma Territory, has purchased mining lands for development from L. H. Skeels and J. T. McClammy of Chihuahua, Chl.

Mining Properties.—The Victoria Mining Co. has been organized at Hermosillo, Sonora, to acquire and continue the development of mining properties. G. B. Underwood is president; Charles D. Riekey, secretary, and W. B. Duvall, manager; branch office at 29 Broadway, New York.

Silver and Copper Mines.—Francisco Lavieaga of Guadalajara, Jalisco, has filed claims to copper and silver deposits which he will develop.

Silver and Lead Mining.—Alois Binder of Zitacuaro, Michoacan, has filed claims to silver and lead deposits which he will develop.

Silver Mines.—Charles J. Dold of Guadalajara, Jalisco, has filed claims to silver mines which he will develop.

Tin-mining.—Frank G. Stevens and H. F. Catten of Guanajuato, Guan., have filed claims to tin-mining deposits which they will develop.

**Railways.**

**Steam Railroad.**—Thomas Ramos has, it is reported, been authorized to build a railway from Hunucma, in the State of Yucatan, to the port of Sisal.

**Steam Railroad.**—The Mexican Central Railway has been granted an extension to

October 1, 1905, to finish its proposed extension from Tuxpan to Colima.

**Street Railway.**—It is reported that a syndicate has been formed to finance the plan to convert the horse-car lines in Chihuahua and also the Mineral Railroad to electric lines. S. L. Pearce of Louisville, Ky., is interested.

**INDUSTRIAL NEWS OF INTEREST****Yellow Pine for Sale.**

Buyers of lumber will be interested in the announcement that about 400,000 feet of Nos. 1 and 2 and common yellow pine, thoroughly seasoned and ready for shipment, is offered for sale by the Page Coal & Coke Co., Eckman, W. Va.

**Cotton Mill for Sale.**

There is an opportunity now offered investors to acquire control of an established cotton mill in the South. The plant is located on the Southern Railway, in good cotton section. It has 2000 spindles, with steam power for 6000 spindles. C. E. Mason of Charlotte, N. C., wants to sell the \$33,000 worth of stock which controls.

**Favorable Prices on Engines.**

The present buyers' market is one especially favorable to the prompt purchaser. Investments, extensions and improvements can now be made at minimum prices. If any of these are in contemplation, involving the purchase of horizontal or vertical engines, Corliss or automatic, simple or compound, write the Ball Engine Co., Erie, Pa.

**A Business Opportunity.**

A competent man prepared to invest \$10,000 and take position with an established enterprise can obtain particulars of the opportunity by addressing the American Land & Security Co., 439 Shibley Building, Kansas City, Mo. The enterprise in reference is a close corporation in the ice, egg, poultry and creamery business, having eight branch houses and doing over \$250,000 annually.

**Increased Efficiency of Engines.**

The increase in mechanical efficiency of engines with forced lubrication has been clearly shown by recent engines built by the B. F. Sturtevant Co. at Hyde Park, Mass., and fitted with a forced pump lubricating system. An increase of from 8 to 10 per cent. is shown, and with the company's latest type of vertical single engines a mechanical efficiency averaging 94 per cent. is attained.

**Big Shipments of Flooring.**

It is interesting to note that the Nashville Hardwood Flooring Co. of Nashville, Tenn., has recently shipped several carloads of beech flooring to the Canton (Ga.) Cotton Mills, also quite a quantity to Messrs. Johnson, King & Co. of Macon, Ga. The company is constantly receiving inquiries for stock of this kind to be used in the floors for cotton mills and other structures used for manufacturing purposes.

**Scott & Williams Allege Infringement.**

It may interest users of knitting machinery to know that Messrs. Scott & Williams, builders of knitting machinery, Philadelphia, Pa., have instituted suit against the Kendall Knitting Co., Utica, N. Y., alleging infringement on Scott & Williams machinery for manufacturing underwear. The Bellis patent for a machine making fleece-lined underwear is the specific infringement charged.

**Brown Corliss Engines.**

The Brown Corliss Engine Co. of Corliss, Wis., has just received orders for the following engines: One 20x12-inch heavy-duty Corliss engine for the Grand Rapids Desk Co., Muskegon, Mich.; one 16 and 26x16-inch vertical compound non-condensing high-speed engine, one 13 and 22x12-inch vertical compound non-condensing high-speed engine, both direct connected for electric-lighting service, and one 9x9-inch single-cylinder high-speed engine for the city of Columbia, Mo.

**Eureka Fire Hose Co.**

The Eureka Fire Hose Co., New York, states there is no truth in rumor mongers relative to a change in the agency of the company at Chicago. Messrs. W. H. Salisbury & Co., who have handled the Eureka product for so many years with marked success, will continue to be their only representatives at Chicago, and it is furthermore hoped will remain indefinitely in control. The Eureka Fire Hose Co.'s "Eureka," "Paragon" and "Red Cross" brands of seamless rubber-lined fire hose have been awarded the highest honors at the St. Louis World's Fair. This is a high tribute.

**Factory Sites Donated.**

Manufacturers who think of establishing plants in the South will find it to their advantage to write the Waynesville Factory Site & Development Co., Waynesville, N. C., for facts regarding that city's facilities as a location for factories. The company is prepared to donate sites to meritable manufacturing enterprises that will locate at Waynesville, especially cotton mills and furniture plants. It will also be in a position soon to furnish electric power for every purpose at reasonable rates per horse-power.

**C. H. Dempwolf Activities.**

Since purchasing the mill properties of the Eastern Milling & Export Co. at the receivers' sale in Philadelphia on August 2, C. H. Dempwolf of York, Pa., has disposed of the following mills: Lancaster Mills, Lancaster, Pa.; Fairview Mill, Columbia, Pa.; Mountain City Mill, Frederick, Md.; Philadelphia Mill, Philadelphia, Pa.; Godschall Mill, Lansdale, Pa.; Penn Mill, Hanover, Pa.; Hanover Mill, Hanover, Pa., and Morehead Mill, East Waterford, Pa. All of these mills with the exception of the Lancaster Mill will continue in operation. They are being run to full capacity and show satisfactory earnings. The Lancaster Mill will be dismantled and the machinery is offered for sale.

**Van Noorden Skylight Contracts.**

The E. Van Noorden Company, manufacturer of sheet-metal work for buildings, Boston, Mass., has recently furnished skylights for the Nashua River Paper Co., East Pepperell, Mass.; West Virginia Pulp & Paper Co., Covington, Va.; Great Falls Woolen Co., Somersworth, N. H.; Charlestown navy-yard, Charlestown, Mass.; Hollingsworth & Vose Co., East Walpole, Mass., and the Dodge-Davis Manufacturing Co., Bristol, N. H. The company is at work on skylight orders for the Portsmouth navy-yard, Portsmouth, N. H.; Hollingsworth & Vose Co., West Groton; Hollingsworth & Whitney Co., Gardiner, Maine; Farrel Foundry & Machine Co., Ansonia, Conn., and Thomas G. Plant Factory, Jamaica Plain.

**Large Contract of Standard Electric Co.**

The Standard Electric Co. of Norfolk, Va., has secured a contract from the Mt. Olive (N. C.) Electric Light & Power Co. for the installation of a complete electric-lighting plant. The installation will consist of a brick power-house, in which will be installed a Hardie-Tynes heavy girder-frame Corliss engine, which will operate the large Westinghouse three-phase generator for generating current and incandescent lighting. The Standard Electric Co. has also the contract for the wiring of the stores and residences. This will be one of the finest plants of its size that the Standard has erected in the South. After spending several months carefully looking over the field, the Mt. Olive Company awarded this contract to the Standard Electric Co., which is another tribute to the reputation of this progressive Norfolk company.

**For Improvements in Valve Mechanism of Compressors.**

A grand prize has been awarded by the Louisiana Purchase Exposition to the Laidlaw-Dunn-Gordon Company of Cincinnati, which installed the two large compressors located in Block 33 of Machinery Building. One of the machines has a capacity of 1300 cubic feet of free air per minute when running at 125 revolutions, and is used to supply the general compressed-air requirements of the exposition, while the other is capable of furnishing 530 cubic feet, and supplies the transportation exhibits. The large machine is fitted with an improved type of valve gear, the distinguishing feature of which is the novel manner of using poppet valves for controlling the opening of the discharge in combination with the semirotary mechanically-moved valves for controlling the closing of the discharge and the opening and closing of the suction.

**Oil Filters for the World.**

American manufactures find their way to all parts of the world. Their superiority steadily increases the demand, and among the numerous devices in the class named is the oil filter, for use in and around indus-

trial plants and other places where oil is used. The Cross Oil Filters, made by the Burt Manufacturing Co. of Akron, Ohio, have been especially successful throughout the world. The company has lately made the following important shipments: Five filters to agency at Helsingfors, Finland; four to customers at Valparaiso, Chile; three to agency at Calcutta, India; nine to supply the English trade; also three large shipments of filters to representative in Havana, Cuba, and a large filter to the Rock Island (Ill.) Arsenal. The Burt Manufacturing Co. has also shipped two eight-inch exhaust-heads to Seattle for government use and 16 exhaust-heads to the English trade.

**The Phoenix Fireproof Window.**

The S. Kelghley Metal Ceiling & Manufacturing Co. of Pittsburgh, Pa., has placed on the market a new hollow-metal fireproof window, glazed with wireglass, claimed to embody features not found in other windows and which complies with the requirements of the underwriters in every particular. This window was submitted to the underwriters for approval, and every change that was suggested by them has been made. The windows are made in either the pivoted or double-hung type, and the construction and workmanship is so perfect in every detail as to merit the almost unanimous approval of architects and builders who have given the subject of fireproofing careful consideration. The company also makes a specialty of architectural sheet-metal work, and is the sole manufacturer of Moore's lock-joint dust-proof ceilings, which also possess fire-retarding qualities. Principal offices at 819-821-823 Locust street, Pittsburgh.

**Big Order for "Childs" Extinguishers.**

One of the largest and most important contracts ever placed for fire extinguishers was awarded last week, and is a high tribute to the manufacturer who obtained the award. The contract calls for 200 "Childs" polished copper finish fire extinguishers to be furnished the Interborough Rapid Transit Co. for its subway stations. This contract has been filled and will be filled immediately by the O. J. Childs Co. of Utica, N. Y. This company's extinguishers have been used for many years (being formerly known as the Utica No. 5 fire extinguishers), and their adaptability and ease of operation have prevented disastrous conflagrations in many factories and mercantile establishments, besides other buildings. The "Childs" is as easy to handle as a pail of water, acts instantly, throwing a stream 40 to 50 feet, and will quickly put out a fire from the burning of kerosene oil or other substances of that nature which cannot be extinguished by water. It is always ready for use. Write the company for details regarding this meritorious device.

**Electrical Equipment for Shops.**

The Cutler-Hammer Manufacturing Co. of Milwaukee, Wis., recently had occasion to purchase electric equipment for its works. As a manufacturer of starters, controllers and rheostats, the Cutler-Hammer Manufacturing Co. disposes of its product to most of the manufacturers of electric machinery in the country. Therefore its position in buying electric machinery was of necessity very delicate, in order that none of its customers might feel offended. After taking propositions from the competing manufacturers of electric apparatus, the Cutler-Hammer Manufacturing Co. proposed to the bidders to refer the selection of the make to a committee of distinguished consulting engineers. It was finally determined to leave the decision to the well-known consulting engineers, Messrs. Sargent & Lundy of Chicago, who, after due consideration and deliberation, awarded the order to the Northern Electrical Manufacturing Co. of Madison, Wis., as the best of electrical machinery for industrial plant service. The order consisted of a 75-kilowatt and a 37.5-kilowatt generator.

**The Modern Consulting Engineer.**

One of the developments of American methods is the consulting engineer. Not only in the erection of plants, but also in the conduct of plants after they are established, does the consulting engineer find his work. Messrs. Ludwig & Co., 513 Empire Building, Atlanta, Ga., are making a specialty of this latter phase of consulting engineering. They study the influence of physical as well as purely technical conditions on the economical operation of manufacturing and other plants producing and using motive power. They visit plants (with which they have arrangements) at regular intervals, thoroughly studying the conditions and the changes required for efficiency and economy. In carrying out their ideas Messrs. Ludwig & Co. will give reliable information in regard to the different types of steam turbines, engines,

electrical machinery, power transmission, compressed air and other machinery and apparatus, the actual value of a water-power, on the use of superheated steam, economizers, mechanical stokers, condensers, cooling racks or towers and other devices, and whether the actual results obtainable with either or any of them would justify their addition to a plant. Being familiar with the various systems of electrical transmission and distribution, and with the numerous problems which present themselves in the application of electricity to modern industrial establishments, as well as municipal and private lighting systems, the firm will give impartial advice. Messrs. Ludwig & Co. state they are absolutely independent of any manufacturing concern or their agents. Correspondence is invited.

**Increased Use of Sand-Lime Bricks.**

The introduction of iron and steel and of bricks made of sand and lime are two important innovations of recent years in building construction. Since sand-lime brick was first used in this country several years ago the demand for them has been steady, and resulted in the establishment of many plants for their manufacture. It is almost needless to state that the great features recommending these sand-lime bricks are their durability and the fact that they can be made in almost any locality and in 10 hours, whereas the old method required not less than 10 days. Special machinery is required for the manufacture of sand-lime bricks, and its design and construction has been made a specialty by the Semisteel Company, 701 New England Building, Cleveland, Ohio. This company owns the Ohlemacher system for sand-lime brick plants, and the various establishments which it has built in the United States have an aggregate capacity of 2,000,000 bricks annually. Recent plants equipped by the Semisteel Company include that of the St. Paul (Minn.) Brick Co., which will make 27,000 bricks every 10 hours. A plant to be equipped at Schenectady, N. Y., will have a daily capacity of 108,000 bricks—said to be the largest for this kind of a plant in this country. It is also of interest to note that the largest building constructed of sand-lime brick is a 10-story structure at Watertown, N. Y., where Ohlemacher bricks were used. The Semisteel Company is prepared to correspond with Southern brick manufacturers, or those contemplating the manufacture of bricks, so as to present all the facts proving the worth of sand-lime brick, and to submit estimates on furnishing and installing the machinery needed.

**York Manufacturing Co. Contracts.**

The York Manufacturing Co., manufacturer of ice-making and refrigerating machinery, York, Pa., has lately obtained many important contracts. Its most recent list of sales include the following: At Stapleton, N. Y., for Reubens & Hornmann, 125-ton cross-compound condensing refrigerating plant in brewery; Philadelphia, Midvale Steel Co., 100-ton refrigerating machine and cooling plant in connection with steel works; Hattiesburg, Miss., People's Ice & Coal Co., 25-ton ice-making plant; Savannah, Ga., W. W. Almar & Co., 20-ton ice-making plant; Wellington, Ohio, Wellington Cold Storage Co., cold-storage plant consisting of one 30 and one 20-ton machine; New York, Westenberg & Williams, construction engineers, one 7½-ton refrigerating plant for St. Denis Hotel; Augusta, Ga., Augusta Brewing Co., 90-ton compression slide; Coshocton, Ohio, Coshocton Ice & Cold Storage Co., 15-ton ice-making and cold-storage plant; Wheeling, W. Va., South Side Provision Co., 40-ton machine and 15-ton freezing and distilling system; Independence, Kan., Independence Ice Co., 30-ton refrigerating machine and 20-ton freezing, distilling and boiler system; Dothan, Ala., Dothan Ice Co., 25-ton ice-making plant; St. Louis, Mo., Independent Packing Co., two 175-ton complete compression slides; Indiana, Pa., Indiana Cold Storage & Ice Co., two 40-ton refrigerating machines with 20-ton ice-making plant; Port Antonio, Jamaica, Titchfield Hotel Co., 10-ton refrigerating plant to be installed in hotel; Monterey, Mexico, Cerveceria Cuauhtemoc, 175-ton compression slide with 30-ton freezing and distilling system, and at Buenos Ayres, S. A., for Agar, Cross & Co., two complete one-ton ice-making plants and one 2½-ton refrigerating plant.

**American Blower Co. Systems.**

As an evidence of the popularity of the heating and ventilating equipments of the American Blower Co. of Detroit, Mich., may be mentioned the following systems now being installed: Columbus Savings & Trust Co., Columbus, Ohio; Reibold Building, Dayton, Ohio; Massillon (Ohio) State Hospital, Cleveland (Ohio) State Hospital, First M. P. Church, Beaver Falls, Pa.; First National Bank, Toledo, Ohio; Baltimore (Md.) Stock Exchange, First Presbyterian Church, Pitts-



burg; Railway Exchange Building, Chicago, Ill.; Merchants' Exchange Building, San Francisco; Seelbach Hotel, Louisville, Ky.; Thomas Orchestra Halls, Chicago, Ill.; Wanamaker Building, New York and Philadelphia; Industrial Trust Co. Building, Philadelphia; Diamond National Bank, Pittsburgh; Carnegie Library, Columbus, Ohio; Columbus (Ohio) State Hospital, Trinity Building, New York; Braddock National Bank, Braddock, Pa.; Y. M. C. A. Building, Winnipeg, Man.; for schools at South Bend, Ind.; West Washington, Pa.; Larimer School, Washington, Pa.; Fifth Ward School, Washington, Pa.; Seventh Ward School, Pittsburgh; Clairton, Pa., and Tiddrout, Pa., and for the factories of A. L. Ide & Sons, Springfield, Ill.; L. Schreiber & Sons Co., Cincinnati; Coulter & Lowry, Greensboro, N. C.; Chattanooga (Tenn.) Plow Co., Drew-Selby Company, Portsmouth, Ohio; Dean Electric Co., Elyria, Ohio; Elyria (Ohio) Gas Engine Co., Benedict & Burnham Manufacturing Co., Burnham, Conn.; Ingram-Richardson Manufacturing Co., Beaver Falls, Pa.; A. Burdall Co., Indianapolis, Ind.; Mershom, Schuette & Parker, Saginaw, Mich.; Sheffield Car Co., Three Rivers, Mich.; Wickham Piano Plate Co., Springfield, Ohio; Bullock Electric Co., Cincinnati, Ohio, and Kelly Springfield Road Roller Co., Springfield, Ohio.

#### Timber-Preserving Plant at the Exposition.

The rapid destruction of the great forests of this country has forced upon the railroads a very serious problem in connection with the supply and preservation of timber and outdoor construction, especially ties. Since the supply of timber for this purpose will probably decrease as time goes on, many efforts have been directed to perfecting processes to preserve the ties from insects and decay. The Ayer & Lord Tie Co., Chicago, has erected a number of large plants for this purpose throughout the country, and has placed on exhibition at St. Louis, west of the California and South Dakota gold mines exhibits, between Intramural Railway stations 12 and 13, a model plant capable of doing commercial work. The timber being treated is placed in airtight cylinders, where it is first subjected to steam under pressure to remove all air from the pores of the wood, after which the air and steam are exhausted. For producing a vacuum, a Deane single-cylinder horizontal direct-acting wet-vacuum pump is used, in which the piston and stuffing-box and the piston are submerged. After all vapor and gases are removed creosote is pumped into the tank and forced into the wood by pressure. The pressure pump in this equipment is designed to work against 300 pounds pressure per square inch, and is of the Deane duplex type, with double plungers instead of pistons. The advantage of the plunger type of pump is that the packings are on the outside, where leakage is immediately detected. A single-cylinder fly-wheel air compressor, having a six-inch steam cylinder, a six-inch air cylinder and a six-inch stroke, is next used to force air into the tank, displacing the creosote and returning it to an elevated storage reservoir. This machine was built by the Clayton Air Compressor Works. The air cylinder of the compressor is completely water-jacketed, both on the sides and heads, and the valves and seats are self-contained and removable. The fly-wheels are extra heavy, so that the machine will operate satisfactorily at very low speed if necessary.

#### Air Compressors in the New York Subway.

The service of the New York subway contemplates the operation of two tracks carrying local trains at one-minute intervals and two more tracks with eight-car express trains at two-minute intervals. The safe handling of these trains offers big problems in signal work. A system has been worked out and applied which practically guarantees the safety of the traveling public. It is a development of the electro-pneumatic switch and signal system used on the great railways. In this system electricity and compressed air join forces, electricity being the nerves and compressed air the muscles. Electricity is the directing force, compressed air the actuating power. The reliability of any switch and signal system depends upon the reliability of its source of power. The electrical appliances offer nothing of decided novelty; they are standard. But the air compressors are unique in design. The machines were built by the Ingersoll-Sergeant Drill Co. of New York, and are a modification of a standard type known as Class "EC." They are two-stage machines with horizontal intercooler, fitted with the Ingersoll-Sergeant piston inlet valve and designed throughout for maximum economy, simplicity and reliability. Nine compressor units have been installed

and three more are under construction. Each compressor is connected by a Morse silent chain to a 35-horse-power Westinghouse direct-current motor taking current from the lines at from 400 to 700 volts; motor and compressor units on a solid sub-base. At rated speed of 120 R. P. M. each unit has a capacity of 215 cubic feet of free air per minute compressed to 80 pounds pressure. The compressors are automatically controlled and regulated by the air pressure. Working pressure on the system is maintained constant within five pounds of the fixed standard. When receiver pressure falls below normal a combination of electrical circuits operates to bring the compressor to speed with no load, then cut out the starting resistance and throw off the load. When normal pressure is reached on the system the machine is unloaded and the motor cut out. Arrangement is also made whereby the starting and stopping of the unit also automatically starts and stops the flow of intercooling water and lubricating oils. The performance of these devices is thoroughly satisfactory. Compressed air from these machines, which are located in substations along the subway, is distributed through two-inch pipe lines running the length of the system and operates various signal mechanisms, pneumatic switches, automatic train-stops, etc. The installation of these electrically-driven air compressors, with their automatic control and regulation, marks a great step forward in switch and signal work. Their performance under the extremely arduous service conditions in the subway is an interesting commentary on the "dependable" quality of the modern air compressor.

#### The Unit Girder Frame for Concrete Construction.

The "Unit" Girder Frame for concrete reinforcement is being used in the erection of the Review Publishing & Printing Co. Building, 4th and Locust streets, Philadelphia. This building is 38x75 feet, four stories and basement. The owners engaged Messrs. Ballinger & Perrot of Philadelphia to make certain alterations in the building, such as removing partitions, interior stairs, etc., and to provide tower fire-escape, brick-enclosed elevator, new plumbing, etc. The firm suggested that the additional cost would not be very great to entirely remove the floors and roof and replace them with floors of fireproof construction, which was agreed to. The system of fireproof construction adopted is reinforced concrete, and it is unique in its method of reinforcement. The steel for reinforcement, instead of being put in each girder as the concrete is placed therein, and having four or more main members, together with stirrups (as is usual with other systems), girder frames are provided, being made from quadruple bars connected together by webs. These bars are three-quarters to one and one-quarter inches diameter, the webs being one and one-eighth inches wide and from one-eighth to five-sixteenths inch thickness. These webs have tongues two inches long punched from same, projecting downward. The outside bars are sheared off entirely from the webs from the end to a point a few feet from the middle, and are bent upward to form camber rods to take care of the negative bonding stresses near the bearings, the middle rods being straight the entire distance and bearing upon the wall or column. Stirrups of 1/2-inch steel, U-shaped, are threaded through the holes punched in the webs, and tongues under the stirrups are hammered back to clinch the stirrup in position. Thus in one unit the girder frame is delivered to the building. To insure its being set the proper height cast-steel sockets one and one-half inches in height, with holes through center, threaded, and having threaded shaft extending downward, are placed in the centering for the concrete girder and bolted thereto from the under side, a hole first being bored in the wood-centering for the purpose. The girder frame is then set in position, so that the threaded bolt extending upward from the socket passes through holes punched through the center web. A nut is then screwed down upon these bolts, firmly locking the girder frame in position, after which the concrete is poured in and rammed about the girder frame. This system thus has the distinctive advantage of having all the steel used in reinforcement placed in position before the concrete is poured, thus enabling the architect to inspect same and feel sure that no portion is omitted. The same system is contracted for and will be installed in buildings which Ballinger & Perrot have designed for the Crane Ice Cream Co. at 23d and Manning streets, two and three stories, size 110x240 feet, Philadelphia; the Victor Talking Machine Co.'s building at Front and Cooper streets, Camden, N. J., four stories, 70x170 feet, and power-house for the same company, two stories, 68x45 feet.

## TRADE LITERATURE.

### Myers Awarded Grand Prize.

In this column last week reference was made to the extensive plant and varied line of manufactures of Messrs. F. E. Myers & Bro. of Ashland, Ohio. It is of further interest to note that the firm has just been awarded the grand prize, gold, silver and bronze medals and premiums at the Louisiana Purchase Exposition, St. Louis. Thus do Myers pumps, hay tools, agricultural novelties, etc., sustain the reputation they have earned during many years past in all parts of the world.

### Regarding Frictionless Metal.

"A Good Eye Opener" is a little leaflet advertising device issued by the Frictionless Metal Co. of Richmond, Va. Opening the leaves shows a good mechanic automatically opens his eyes as the facts regarding frictionless metal are brought to his attention. The Frictionless Metal Co.'s product is carried in stock by over 2500 hardware and supply dealers, and is used extensively by manufacturers, to their great satisfaction. It has been on the market 16 years, and is used by the most representative manufacturers in every civilized country in the world.

### Making Building Stone.

Portland cement has made such vast strides in the last few years, it has been used in the work of the greatest importance so extensively and with such satisfaction, that its many valuable qualities are now known to almost everybody. It is as readily molded as wax, limited in form, color and design only by the imagination of the architect, and possesses great endurance. For building purposes it is unsurpassed. The hollow concrete building block is destined to be a permanent feature of all construction work. A machine that will turn out the best of blocks, too simple to get out of order, too strong to break and cheap is being introduced by Messrs. Pettyjohn Bros. of 1300 North 1st street, Terre Haute, Ind. They have issued an illustrated booklet called "Stonemaking," which tells all about the Pettyjohn hollow concrete building-block machine. Send for one.

### Cotton Chats for October.

The labor cost of production in manufacturing cotton goods was the subject of an interesting address delivered at the meeting of the New England Cotton Manufacturers' Association last month. This address referred to the cost of weaving as compared with the other processes in milling, and it has been given considerable space, with accompanying supplementary remarks by the Draper Company of Hopedale, Mass. In Cotton Chats for October. This company especially points to the results in lower cost of production by the use of the celebrated Northrop loom, and every cotton manufacturer should be acquainted with the facts. Textile machinery at the St. Louis Exposition is also given attention. The Draper Company also announces that it will supply binders for Cotton Chats to those who will request same by writing direct to the home office at Hopedale.

### The Nernst Lamp in Commercial Lighting.

While there are many already acquainted with the Nernst Lamp, not only in its general construction, but also in the electrical characteristics of its elements and the history of its development, still the facts are of interest to others who have given no thought to this latest factor in commercial electrical lighting. What the results have been and just what has been accomplished by the Nernst Lamp since its introduction several years ago is completely presented in "The Nernst Lamp as a Factor in Commercial Lighting." This is in pamphlet form, and is a reprint of the paper read by E. R. Robinson before the Michigan Electric Association at its first annual convention October 11 and 12. The Nernst Lamp Co. of Pittsburgh, Pa., presents the pamphlet, and the latter should be perused by all who are interested in electric-lighting improvement.

### Variable-Speed Motor Drive.

There has been issued Bulletin No. 37 on variable-speed motor drive for machines and machine tools. The scope of the variable-speed motor shown in the bulletin can be well indicated by the fact that one figure illustrates a variable-speed motor equipment shown in the World's Fair exhibit at Section 14, Palace of Electricity, operating from the exposition company's two-wire single-voltage circuit and affording speed variations as high as 5 to 1. These variable-speed motors are especially well suited to machine-shop work, as they do not necessitate any wiring other than that required for the constant-speed motors; thus their installation in plants

wired for power distribution to constant-speed direct-current motors does not involve any alteration in or addition to existing power circuits. The Northern Electrical Manufacturing Co., Madison, Wis., issues the bulletin and makes the motor.

### Woodward Water-Wheel Governors.

In order to give the best results, a water-wheel governor must be completely adapted to the work which it is to perform, and its connection to the gate must be of proper design and proportion. For more than 30 years the Woodward Governor Co. of Rockford, Ill., has been manufacturing governors for water-wheels, and its product has been the best size and type suited for affording the best satisfaction in each case. Many difficulties have been met and overcome with the Woodward governors. The compensating type and the standard type have been especially successful. The compensating type is intended for modern practice in plants operating apparatus for electrical purposes. There are two models for electric light, power and railway service. It will operate the gates of the turbine at a rate of from four to ten seconds for the full range, with absolutely no racing, and under favorable flume conditions will maintain the speed within as close limits as the modern steam engine. It is made both horizontal and vertical. The standard type is recommended for use in mill and factory work where the load fluctuations are not heavy and frequent. A clear and concise description of the principles and construction of the various makes of Woodward governors is presented in the company's illustrated catalogue. If you operate a water-wheel, or intend to do so, send for the Woodward catalogue.

### Pipe-Foundry Facts.

It is with a pardonable pride that the Lynchburg Foundry Co. of Lynchburg, Va., looks back over its record of casting for the past year. The company has issued its September monthly pipe-foundry report, giving some interesting facts concerning the year's work. During the month of August the company cast 3742 lengths, 8 inches, 10 inches and 12 inches, in No. 2 pit, without the loss of a single length from any cause whatever, a record it believes has never been equalled by any pipe foundry in this country. Some have been a little skeptical as to the correctness of the reports, but expressions of doubt have been compensated by many voluntary letters received from those who have used the pipe, testifying to its excellent qualities both as to smoothness of casting and tensile strength of metal. The reports are based on a most rigid inspection of the pipe, beginning at the cleaning skids, where it is thoroughly examined for any visible defects, and, in addition to a careful oversight by the inspector himself, each cleaner is instructed to watch for and report the least imperfection he may discover, and this inspection is ended at the testing press, where each length is tested to 300 pounds hydrostatic pressure and struck sharply with a hammer while under pressure to disclose any hidden flaws, initial or shrinkage strains. The company's average casting loss for 12 months has been 0.435 per cent. During this season the Lynchburg Foundry Co.'s plant has been taxed to its utmost capacity consistent with the best results to be obtained, and while it is the intention to increase facilities during the winter, the motto of "quality rather than quantity" will be adhered to.

### Lava for Mechanical and Electrical Purposes.

"Lava" is well known through its universal use in the manufacture of gas tips and burners, and its widespread applications in the electrical arts. It is not, as is frequently supposed, a natural product of volcanic origin. It is the mineral talc ( $H_2$ ,  $Mg$ ,  $Si$ ,  $O_2$ ), which is machined in its natural condition and then baked under certain conditions of time and temperature (about 2000 degrees Fahrenheit or 1100 degrees Centigrade) to a condition of such extreme hardness that when properly kilned it can scarcely be cut except by diamond. The material is unaffected by any temperature short of the heat mentioned, and therefore by any heat to which it may be exposed when used in the construction of arc lamps, rheostats, electric heating apparatus, etc.; in fact, under any conceivable circumstances a lava insulator would withstand a far greater heat than the conductor which it protected. "Lava" fuses with difficulty under a strong blast flame, and has no superior in withstanding the electric arc. It is only slowly dissolved by hydrochloric acid, and is not affected at all by other acids or by alkali. It is absolutely free from metal oxides or other impurities which would impair its insulating value. It is permanent in constitution, and, being a natural product, is not subject to variations in structure or com-

position. It neither swells nor shrinks with changes in atmospheric moisture, and its coefficient of expansion with temperature being negligibly small, it is of especial value in instruments requiring a fixed relation of their parts under all conditions." The foregoing, quoted from "Lava for Mechanical and Electrical Purposes," will interest manufacturers. The publication named is issued by the American Lava Co. of Chattanooga, Tenn. This company manufactures articles of "lava," and invites users of same to write for a copy of the illustrated booklet.

#### Lima Locomotive & Machine Co.

Locomotives, cars and their accompaniments comprise a product which the industrial progress of the world demands in ever-increasing volume. They find their use in all kinds of operations in the mine and field, in numerous manufacturing and commercial establishments and elsewhere. To design and build locomotives, logging cars, industrial cars, etc., of the character indicated has been the specialty of the Lima Locomotive & Machine Co. since 1860. This company's success is evident in the large plant which it conducts at Lima, Ohio, and the many orders it is constantly executing, and the fact that its locomotives, etc., are in use not only in almost every one of our States and Territories, but also in foreign countries in every quarter of the world. The Lima Company manufactures direct-connected locomotives, Shay-gear locomotives and logging cars in every size and variety of size and design and for any practical gauge of track, for a wide range of service, and well adapted to severe requirements and conditions. While the Shay principle is adhered to in building the Shay locomotives, the company makes those engines strictly modern in every respect. Car wheels, axles, railroad and machinery castings, etc., are also products of the extensive Lima plant, which occupies 15 acres of land, and with the new buildings lately added has a floor space of 300,000 square feet. Two catalogues of Lima locomotives are now being distributed, one of them being devoted exclusively to the Shay patterns and the other to general Lima designs. These publications are most complete. They are fully illustrated, and contain much valuable data in the form of facts and figures, enabling buyers to estimate on the cost of equipments that are needed. Moreover, the Lima Locomotive & Machine Co. is always prepared to correspond personally with those who may be in the market, submit estimates on what is wanted, give advice as to the best equipments for stated purposes, build to designs furnished by the buyer and otherwise assist in arriving at the best results.

#### Valuable Handbook on Engineering.

Subjects of great importance to many men are the practical care and management of dynamos, motors, boilers, engines, pumps, inspirators and injectors, refrigerating machinery, hydraulic elevators, electric elevators, air compressors, rope transmission and all branches of steam engineering. A valuable handbook on engineering comprising the various branches referred to has been issued. It numbers nearly 1000 pages, each about 4½x6½ inches in size, and includes numerous diagrams elucidating the text. Moreover, it is durably bound in leather and printed in the most acceptable manner. Its author is Henry C. Tulley, Engineer and Member Board of Engineers, St. Louis, Mo.; offices in the Wainwright Building. His object has been to present to the practical engineer a book to which he can with confidence refer for information regarding every branch of his profession. The book is a plain and practical treatise on the steam boiler, steam pump, steam engine and dynamo, and how to care for them; electric and hydraulic elevators, and how to care for them, and on all work that an engineer is apt to come in contact with in his profession. An experience of over 25 years with all kinds of machinery enables the author to fully understand the kind of information most needed by men having charge of steam engines of every description, and what they should comprehend and employ. The author carefully made note of his experience, and also of things that came to his notice while visiting different engineering rooms, and accordingly has taken up each subject singly, excluding therefrom everything not strictly connected with steam engineering. Particular attention has been given to the latest improvements in all classes of steam engines, with rules and formulas according to the best modern practice, which will be of great value to engineers, as nothing of the kind has heretofore been published. This book also contains ample instructions for setting up, lining, reversing and setting the valves of all classes of engines. It sells at \$3.50. Booklets summarizing the contents can be obtained from Mr. Tulley.

## FINANCIAL NEWS

The Manufacturers' Record invites information about Southern financial matters. Items of news about new institutions, dividends declared, securities to be issued, openings for new banks, and general discussions of financial subjects bearing upon Southern matters.

#### Review of the Baltimore Market.

Office Manufacturers' Record,  
Baltimore, Md., October 26.

The Baltimore stock market has been comparatively dull during the past week, the usually active features, such as United Railways, Light & Power, Consolidated Gas, Seaboard and G. B. S. Brewing, being rather neglected, although Seaboard showed a little movement. Trust company stocks picked up considerably, displaying a stronger tone and scoring advances. Atlantic Coast Line also showed strength, and there was a well-diversified business throughout the rest of the list.

In the dealings United Railways common sold at 7½ and 7¾, the incomes at 46¼ and the 1sts at 90½ to 91½; United Light & Power preferred changed hands at 39½, and the 4½s at 95 and 95½; Consolidated Gas sold from 83 down to 82, the 6s at 110¼ and 111 and the 5s at 116; Seaboard common advanced from 15¼ to 16½, with last sale at 16½; the preferred from 33¼ to 35, with last sale at 33½; the 4s sold from 81¼ to 81½ and the 10-year 5s at 103¾; the 3-year 5s were dealt in at 96½ and 97; Cotton Duck common at 5½ and 5¼, and the 5s at 68¼ to 69¼; G. B. S. Brewing at 6½ to 7, the incomes at 26½ and the 1sts at 54½.

Bank stocks sold as follows: Mechanics', 29; Western, 40; First National, 140; Bank of Baltimore, 119½ and 119¾; Farmers and Merchants', 58; National Exchange, 190; Merchants', 160.

Trust company stocks were traded in as follows: Continental, 124 and 125; Colonial, 30 and 31; Mercantile, 158 and 160; International, 118 to 122; Baltimore, 275 to 290; United States Fidelity & Guaranty charged hands at 107 to 109; Maryland Casualty at 55 to 57; Fidelity & Deposit at 145 to 150.

Other securities were dealt in as follows: Atlantic Coast Line common, 137½ to 140½, reacting to 138; Atlantic Coast Line of Connecticut, 295 to 299; Atlantic Coast Line consolidated 4s, 98¾ to 98¾; do. new 4s certificates, 90; Northern Central stock, 94 to 95; Carolina Central 4s, 97¼ to 97½; Georgia, Carolina & Northern 5s, 111 and 111½; Baltimore City Passenger 5s, 108½; do. 4½s, 104½; Norfolk Railway & Light 5s, 90¾; Alabama Consolidated Coal & Iron 5s, 76 to 79; Norfolk Railway & Light stock, 10½; Tidewater Steel, 2¼; Knoxville City 6s, 114½; Charleston & West Carolina 5s, 112; Florida Southern 4s, 95½ to 95¾; Raleigh & Augusta 6s, 123½; Virginia Midland 2ds, 111½; Atlanta Street Railway 5s, 107; People's Gas 5s, 105; Consolidation Coal, 68; Erie, 36¾; Anacostia & Potomac 5s, 103¾ and 103¾; Georgia & Alabama Consolidated 5s, 109½; Alabama Consolidated Coal & Iron preferred, 60; Chicago Great Western, 22; Ontario & Western, 43; German Fire Insurance, 14½; Maryland & Pennsylvania 4s, 92 to 92½; Richmond Traction 5s, 103; Maryland Telephone 5s, 93 to 91¼; Georgia Southern & Florida 2d preferred, 63; Louisville & Nashville stock, 136; Western Maryland new 4s, 87½ to 87¾; Virginia Electric & Development 5s, 95; Southern Railway preferred, 94½; Atlanta & Charlotte 7s, 107½; Newport News & Old Point 5s, 97½; Norfolk Street Railway 5s, 107; Augusta Railway & Electric 5s, 103½; Charleston Street Railway 5s, 106¾; Seaboard & Roanoke

5s, 111½; Baltimore City 5s, 1916 W. L., 119½; do. 3½s, 1928, 111; do. do, 1936, 111½; Coal & Iron Railway 5s, 106; Brush Electric 5s, 101; Alabama Consolidated Coal & Iron common, 18 to 19.

#### SECURITIES AT BALTIMORE.

Last Quotations for the Week Ended  
October 26, 1904.

Railroad Stocks.	Par.	Bid.	Asked.
Georgia Southern & Florida.....	100	25	35
Georgia Sou. & Fla. 1st Pref.....	100	96¼	96
Georgia Sou. & Fla. 2d Pref.....	100	45	70
United Railways & Elec. Co.....	100	7¼	8
Seaboard Railway Common.....	100	16¼	16½
Seaboard Railway Preferred.....	100	33¾	34
Norfolk Railway & Light.....	25	10	10½
Atlantic Coast Line.....	100	138	
Atlantic Coast Line Pref.....	100	115	
Atlantic Coast Line of Conn.....	100	295	300
Macon Railway & Light Stock.....	100	18	

Bank Stocks.	Par.	Bid.	Asked.
Citizens' National Bank.....	10	28	29
Commercial & Far. Nat. Bank.....	100	100	
Drovers & Mech. Nat. Bank.....	100	335	400
Farmers & Mer. Nat. Bank.....	40	57	60
First National Bank.....	100	140	145
German-American Bank.....	100	106	
Merchants' National Bank.....	100	168	170
National Bank of Baltimore.....	100	118	120
National Howard Bank.....	10	10¼	12
National Marine Bank.....	30	36	38
National Mechanics' Bank.....	10	27¼	29
National Union Bank of Md.....	100	116¼	120
Old Town Bank.....	10	9	11
Second National Bank.....	100	182	
Western National Bank.....	20	41	

Trust, Fidelity and Casualty Stocks.	Par.	Bid.	Asked.
Baltimore Trust & Guaranty.....	100	275	291
Colonial Trust.....	50	30	32
Continental Trust.....	100	125	130
Fidelity & Deposit.....	50	148¼	149
International Trust.....	100	117	120
Maryland Casualty.....	25	56	57
Mercantile Trust & Deposit.....	50	157¼	158
Union Trust.....	50	40	43
U. S. Fidelity & Guaranty.....	100	109	

Miscellaneous Stocks.	Par.	Bid.	Asked.
G. B. & S. Brewing Co.....	100	6¼	7
United Elec. L. & P. Pref.....	50	38	39
Cotton Duck Voting Trust.....	100	5	5¼
Consolidation Coal.....	100	71	
Consolidated Gas.....	100	82	82¾
Alabama Con. C. & I. Com.....	100	19	20
Alabama Con. C. & I. Pref.....	100	63	65

Railroad Bonds.	Par.	Bid.	Asked.
Albany & Northern 5s.....	100	93¼	95
Atlanta & Charlotte 1st 7s, 1907.....	100	107	
Char. & W. Car. 5s.....	100	112¼	112½
Char. Col. & Aug. 1st 5s, 1910.....	100	115	
Char. Col. & Aug. 2d 7s, 1910.....	100	110	
Atlantic Coast Line Con. 4s.....	100	98¾	99½
Carolina Central 4s.....	100	97	
Coal & Coke Ry. 5s.....	100	106	106½
Florida Southern 4s.....	100	95¼	96
Georgia, Car. & North. 1st 5s, 1909.....	100	111	111½
Georgia South. & Fla. 1st 5s, 1945.....	100	115	
Raleigh & Augusta 1st 6s, 1926.....	100	122¼	125
Richmond & Danville Gold 6s, 1915.....	100	117¼	119
Seaboard & Roanoke 5s, 1926.....	100	111	112
Southern Railway Con. 5s, 1994.....	100	118	
Virginia Midland 2d 6s, 1911.....	100	111	112
Virginia Midland 5th 5s, 1926.....	100	112	
West Virginia Central 1st 6s, 1911.....	100	112¼	112½
Wilmington & Wel. Gold 5s, 1935.....	100	119	124
Charleston City Railway 5s, 1923.....	100	106½	107½
Charleston Con. Electric 5s, 1909.....	85	90	
Newport News & Old Pt. 5s, 1938.....	97	99	
Norfolk Street Railway 5s, 1944.....	107	108	
United Railways 1st 4s, 1919.....	21¼	32	
United Railways Inc. 4s, 1919.....	46	46¼	
Seaboard 4s.....	81	81¾	
Seaboard 10-year 5s.....	103¾	103¾	
Seaboard 3-year 5s.....	97¼	97¼	
Citizens' R. L. & P. of N. N. 5s.....	80	85	
Lexington Railway 1st 5s.....	102¼	105	
Richmond Traction 5s.....	103	103½	
Norfolk Railway & Light 5s.....	90	91	
Georgia & Alabama Con. 5s.....	109¾	109¾	
South Bound 5s.....	109¼	110¼	
Western Md. New 4s.....	87¼	87¼	
Atlanta St. Ry. 5s.....	106¾	107¼	
Augusta R. & E. 5s.....	103	104	
Macon R. & L. 5s.....	89	91	

Miscellaneous Bonds.	Par.	Bid.	Asked.
Mt. V. & Woody's Cot. Duck 5s.....	68	68¼	
Mt. V. & Woody's Cot. Duck Inc.....	18	19	
G. B. & S. Brewing 1st 3-4s.....	54¼	55	
G. B. & S. Brewing 2d Income.....	26¼	27	
United Elec. Light & Power 4½s.....	96¼	96½	
Atlanta Gaslight 1st 5s, 1947.....	101		
Consolidated Gas 5s, 1910.....	110¼	111	
Consolidated Gas 5s, 1939.....	116	116½	
Alabama Con. C. & I. 5s.....	78	79	
Maryland Telephone 5s.....	91	92¼	

A plan is under way to organize another national bank at Hagerstown, Md., with \$100,000 capital. Among the projectors are Mayor Abraham C. Strite, Abraham E. Albert, former president of the board of county commissioners; D. C. Gilbert, former teller in the Second National Bank, Hagerstown; Dr. Amos Shank of Clearspring and others. Mr. Albert will be president of the institution.

The Russell & Dickenson Bank, capital \$10,000 to \$50,000, with principal office at Dante, Russell county, Virginia, has been granted a charter. The incorporators are S. R. Jennings, president, Dante, Va.; R. W. Dickenson, vice-president, Castlewood, Va.; J. E. Duff, secretary and treasurer, Castlewood, Va.

The Helping Hand Savings and Loan Association has been incorporated at Baltimore, Md., with capital not to exceed \$1,000,000. The incorporators are Chas. H. Fowler, Ananias Brown, Felix B. Pye,

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Charles Tolson, Philip H. Pratt, Minnie B. Lewis and Harry O. Wilson.

W. H. Eddleman, president of the Western National Bank of Fort Worth, Texas, has leased the building recently occupied by the Red River National Bank and will open a new bank there to be known as the Cooke County National Bank.

A. Risner and Mr. Bently of Durant, I. T., are making arrangements to open a new bank at Bokchito, I. T.

[For Additional Financial News, See Pages 30 and 31.]



